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ARCHAEOLOGICAL RECONNAISSANCE OF NINE IN SITU
OIL SHALE LEASE TRACTS, COLORADO-UTAH

BY

David A. Weber

Kevin T. Jones

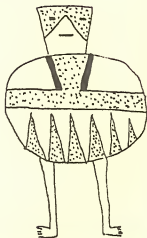
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*Reports of the Laboratory of Public Archaeology No. 3
April, 1977*

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Prepared for the U.S. Department of the Interior
Geological Survey
Interagency Task Force
Grand Junction, Colorado

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INTRODUCTION

This paper constitutes the technical report on field reconnaissance of nine oil shale lease tracts conducted by the Laboratory of Public Archaeology, Colorado State University. The project was sponsored by the U.S. Geological Survey Interagency Task Force for the purpose of preparing the Cultural Resources section of an Environmental Impact Statement on In Situ Oil Shale Development.

The areas studied are on National Resource Lands under the jurisdiction of the Bureau of Land Management and are located in the Piceance Basin in northwestern Colorado and the Uintah Basin in northeastern Utah. Fieldwork was conducted under Federal Antiquities Act Permit numbers 76-UT-102 (Utah) and 76-CO-011 (Colorado), Utah state permit number 202 and Colorado state permit number 76-16.

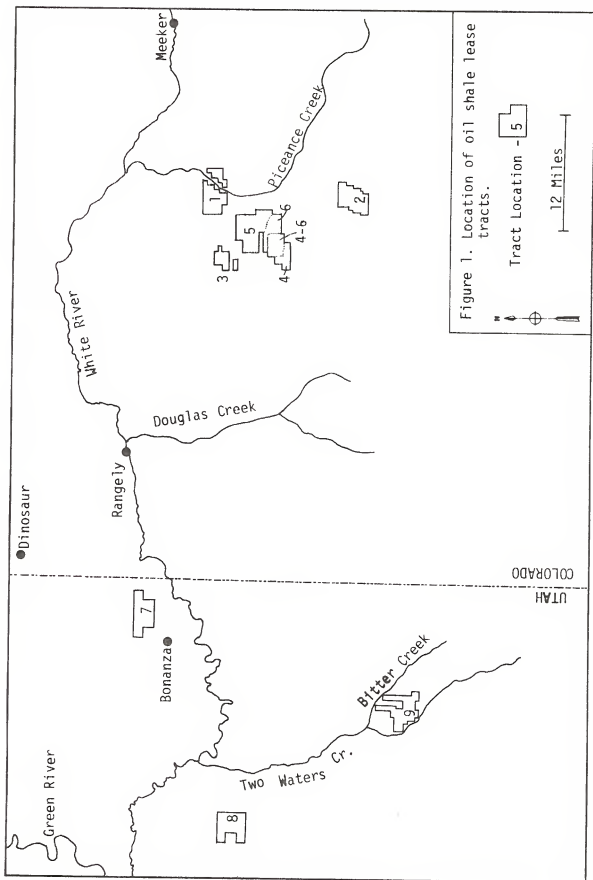
Fieldwork was conducted between September 30 and November 14, 1976. Laboratory analysis of all data followed immediately.

LOCATION OF STUDY AREAS

Nine tracts of National Resource Land were designated as locations for potential in situ oil shale development. Six of the tracts are located in the Piceance Basin of Colorado and three are in the Uintah Basin of Utah (see Fig. 1).

Tract 1 is located on both the west and east sides of Piceance Creek in the vicinity of the Square S Ranch. The tract is mainly confined to the high ridges overlooking Piceance Creek. Tract 2 is in the south-central part of the Piceance Basin between Hunter and Willow Creeks, both of which are perennial tributaries of Piceance Creek.

Figure 1



Tract 3 is in the Yellow Creek drainage of the Piceance Basin, near 84 Ranch. The tract is divided into two sections which are divided by Corral Gulch. Much of the tract overlooks the confluence of Corral Gulch and Stake Springs Draw. Tracts 4 and 6 form a contiguous area between Black Sulphur Creek on the south and Ryan Gulch on the north. Both Ryan Gulch and Black Sulphur Creek are tributaries of Piceance Creek.

Tract 5 is primarily drained by Ryan Gulch, which runs through the southeast part of the tract. It covers most of the ridgetops to the north of Ryan Gulch for about five miles east from Ryan School. The northwestern fringes of the tract are in the Yellow Creek drainage.

Tract 7 lies between Bonanza, Utah and the area of the Walsh Knolls. Drainage is provided by Coyote Wash, tributary to the White River.

Tract 8 is about 20 miles southeast of Ouray, Utah. It is drained by Cottonwood Wash, an ephemeral tributary of the White River.

Tract 9 is situated on McCook Ridge, between Sweet Water Canyon on the south and Bitter Creek on the north. It is in the area of Pete Canyon, in the east central portion of the Uintah Basin.

Description of the Existing Environment

Piceance Basin

Geomorphology and geology. The Piceance Creek structural basin is an elongated, regional downwarp in northwestern Colorado, lying between the Grand Hogback on the east and the Douglas Arch on the west (Landon 1973). The basin is bounded on the north by the White River and on the south by steep escarpments along the Colorado River. The elevation ranges from 5250 to over 9000 feet above mean sea level, with local relief of 200 to 600 feet. The terrain is moderately rugged, characterized by steep-sided interfluvial ridges. The larger streams meander across

broad floodplains. This topographic pattern is typical of a mature stage in the fluvial cycle of erosion.

A major topographic feature of the region, which may have influenced distribution of prehistoric peoples, is the Cathedral Bluffs. High, steep, nearly impassable cliffs form a natural barrier between the Douglas Creek drainage on the west and the Piceance Creek drainage to the east.

All of the formations exposed on the surface in the Piceance Basin are Eocene age lacustrine and fluvatile deposits. The uppermost member of the bedrock stratigraphy has recently been identified as the Uintah Formation (Cashion and Donnell 1974:68). These deposits were formerly identified as the Evacuation Creek member of the Green River Formation. They consist chiefly of sandstone, marlstone, siltstone and sandy shale, with occasional beds of low grade oil shale (Landon 1973:II-3; Bradley 1931:1). The color ranges from buff to light brown with occasional iron stain. The Uintah Formation overlies the oil shale-rich deposits of the Parachute Creek Member of the Green River Formation. The uppermost stratigraphic layer has also been identified as belonging to the Bridger formation (U.S. Geological Survey 1935; American Association of Petroleum Geologists 1967) but it appears that this classification is not widely accepted.

The nature of the Uintah Formation is a significant factor when possible modes of exploitation by prehistoric peoples are considered. The local sandstone was probably a source of raw material for the manufacture of milling implements. Cryptocrystalline silicates suitable for the production of flaked tools is rare in the exposed deposits. Thus, most toolstone for flaking was probably brought in from other areas. Finally, Uintah sandstones are not prone to differential weathering and

therefore seldom produce overhangs, caves, or rockshelters suitable for human habitation.

Quaternary geology. Drainage systems in semi-arid areas of the southwest, such as the Piceance Basin, are subject to cycles of deposition and erosion which are associated with large scale changes in the environment of the immediate area. Cyclical changes in the water table and vegetation patterns of the floodplain must have had a profound influence on the prehistoric inhabitants of the area.

In reporting on the Douglas Creek drainage system, just west of the Piceance Basin, Womack (1975) delineated three major stratigraphic levels in the valley fill, indicating three major periods of alluvial deposition. Each depositional period was apparently followed by arroyo cutting and the present erosional cycle appears to be the most severe. Unfortunately, a chronology for the alluviation-erosion cycle has not yet been established.

Historical accounts lend credence to the concept of cycles evidenced in the alluvial stratigraphy. The Dominguez-Escalante expedition to the interior basin traveled down Douglas Creek in September, 1776. In his diary, Father Escalante reports that they encountered only "one bad stretch" where crossing the arroyo was necessary (Bolton 1951:166-167). Today a similar expedition would have a very difficult time descending the canyon as the meandering stream would force a number of arroyo crossings, each posing a major obstacle.

Long time residents of the area report that in 1882, the Douglas Creek valley was good cattle country, covered with deep grass, without the thick brush and deep arroyos that exist today (Kirby and Hinricks 1972:123). It is difficult to integrate the historical accounts with the stratigraphic data, although some arroyo filling may have taken place

between Escalante's journey through the valley in 1776 and the arrival of the first settlers in the early 1880's.

Exact causal factors for the cyclical nature of stream bed deposition and erosion have not been precisely pinpointed. It is likely that a number of influencing factors are involved.

Throughout northwestern Colorado, severe arroyo cutting has been taking place since the late 1800's. A widely held view is that overgrazing reduced the vegetative cover and led to increased downcutting (Rich 1911). Overgrazing is undoubtedly a factor which helped trigger the latest stage of erosion, but it does not sufficiently explain the earlier evidence of the arroyo cutting.

Studies of the depositional-erosional patterns in the Southwest have revealed a number of factors which may induce change. Geomorphic thresholds, basin size and the complex response of drainage systems may predispose a drainage system for changes which may then be triggered by external stimuli. For example, Schumm and Hadley (1957) theorize that there is a critical (longitudinal) valley slope, above which trenching should occur. The slope increases through deposition, to a critical point at which erosional cutting will begin.

Bryan (1941), however, believes that periods of downcutting were brought about by decreased precipitation. A drier climate would cause a reduction of vegetation, making alluvium easier to remove. Also, less frequent, more intense storms could lead to increased erosion. Studies of the width of annual growth rings in trees in Arizona have shown that the interval from AD 1870 to 1889 was probably a period of low precipitation and high temperatures, conditions which could induce or be conducive to downcutting (Stockton and Fritts 1971:21-22).

The patterns of change in floodplain characteristics are of archaeological interest from several standpoints. A depositional period is likely characterized by a higher water table, more lush vegetative growth, and increased faunal populations, all of which would increase the attractiveness of the area to prehistoric peoples. Fremont horticulturalists are known to have inhabited the area, and a period of deposition or post-depositional stability would have been conducive to horticulture. Arroyo trenching, on the other hand, would make farming less feasible if not impossible. An understanding of these cycles, including dates, will increase our understanding of the exploitable environmental niches available to prehistoric residents of the area.

Soils. Soils in the Piceance Basin can be characterized as ranging from a thin, sandy-shaley layer on the ridgetops and higher elevations to thick alluvial deposits of the lowland floodplains. Soils in the basin are typically calcareous or alkaline except those developed in conifer areas, which are acid near the surface. Texture is, for the most part, loamy with medium to high permeability (Fox 1973:III 19). Representative soil series which have been described include Rencalson, Dominguez, Troutville, Billings, Persayo, and Ravola (III 6-15).

Hydrology. Local availability of water is a prime limiting factor when considering prehistoric human occupation. Studies in the Piceance Basin have demonstrated an inverse correlation between site density and distance from water (Hurlbutt 1975).

The northern portion of the Piceance Basin is drained by Piceance and Yellow Creeks, tributaries of the White River. Drainage to the southern portion of the basin is provided by Roan and Parachute Creeks, which are tributary to the Colorado River. These major streams are fed primarily

by ephemeral drainages. Peak flows, exclusive of summer storms, generally occur during spring snowmelt. Flow in Piceance Creek is more uniform, being maintained by groundwater discharge from the Green River (and Uintah) formations (Meiman 1973: V 2).

High intensity summer rains produce surface runoff of which a large part may permeate the valley alluvium, whereas snowmelt runoff is predominantly a subsurface flow (Meiman 1973: V 2). Coffin, *et al.* (1971) have noted a flow increase in some of the springs in the basin in response to snow melt.

The best potential sources of ground water in the Piceance Basin are the Parachute Creek Member of the Green River Formation and the overlying Uinta Formation. Both are aquifers and contain water under artesian pressure throughout most of the area. There are many flowing wells and the maximum depth to water is 200 feet. About 250 springs tapping the alluvium and the Green River (and Uintah) Formations supply water for domestic and stock use throughout the basin (Coffin *et al.* 1971).

The periodic erosional-depositional fluctuations noted in the Douglas Creek area (Womack 1975) are probably also represented in the Piceance Basin. If the cycles are indeed influenced by precipitation, a depositional period might well be characterized by more perennial streams which are less prone to fluctuation, a higher water table, and more alluvium-tapping springs. Conditions during an erosional period were probably similar to the present situation, both in terms of runoff and precipitation patterns. Patton (1973) feels that the erosional trenching along Piceance Creek may be stabilizing, as the creek is nearing bedrock and vegetation is helping to control downcutting. Stabilization due to these factors would not have as dramatic an impact on available habitat as could changes due to broader climatic variation.

Climate. The climate of the Piceance Basin is typical of an arid steppe region, characterized by abundant sunshine during all seasons, insufficient precipitation for strong vegetative growth, warm summer temperatures, and low relative humidity (Marlatt 1973: IV 1). Prevailing upper level winds are generally from the west. Moisture-laden air from the Pacific Ocean and the Gulf of Mexico is prevented from reaching the area by the surrounding mountains.

Winter weather is influenced by stagnant high pressure systems which often persist for days, causing clear skies, light winds and large diurnal temperature differences. Summer conditions are dominated by "thermal lows" characterized by warm days, cool nights and highly changeable wind speed and direction.

Precipitation in the basin is strongly influenced by elevation and terrain. Precipitation ranges from about 10 inches per year at 5000 feet to over 25 inches at 8000 feet (Marlatt 1973: Table 1). Winter snowfall accounts for 30-40% of the annual precipitation.

Downslope flow of cooled air often creates inversions, resulting in colder temperatures in the valleys, a situation which is expected to occur 80 to 95 percent of the nights. Frost in the valleys is believed to be more common and of greater intensity than on the mesa tops in the winter due to this phenomenon (Marlatt 1973: IV 11). Colder valley temperatures may have influenced prehistoric people to locate campsites on ridgetops where the air is warmer.

Vegetation. The range in elevation and diversity of terrain in the Piceance Basin produce a mosaic distribution of plant communities. Ranging from Douglas fir (*Pseudotsuga menziesii*) and aspen (*Populus tremuloides*) forests at the higher elevations to big sagebrush (*Artemisia tridentata*)

and greasewood (Sarcobatus vermiculatus) shrublands in the valley bottoms, the diversity represents response to a multitude of physical, biological and human factors (Ferchau 1973: VI 1).

Ward et al. (1974) have provided detailed descriptions of 18 major plant communities which occur in the Basin. For the purposes of this discussion a more general breakdown into three basic vegetation types will suffice. See figures 2 and 3 for views of typical vegetation.

Pinon-juniper woodland is dominant on ridgetops and high ground where the soils are shallower. Pure stands of pinon pine (Pinus edulis) or Utah juniper (Juniperus osteosperma) occur, but mixed stands are more common. Shrubs present in this community include big sagebrush, rabbitbrush (Chrysothamnus spp.) and bitterbrush (Purshia tridentata). Principal grasses are junegrass (Koeleria cristata), beardless wheatgrass (Agropyron inerme), needle and thread (Stipa comata), Indian ricegrass (Oryzopsis humenoides), and blue grama (Bouteloua gracilis).

Sagebrush shrubland characteristically covers the alluvial bottomlands and mesa tops where the soil is deeper than in areas of pinon-juniper. Sage communities occupy a greater area than any other type. Greasewood may dominate in valley bottoms with moderate to high salinity and alkalinity (Ward et al. 1974:39). Other important shrubs include rabbitbrush, spiny horsebrush (Tetradymia canescens), shad-scale (Atriplex confertifolia), serviceberry (Amelanchier alnifolia), mountain mahogany (Cercocarpus montanus) and snowberry (Symphoricarpos tetonensis) at higher elevations.

At elevations of 7000 to 8000 feet a mixed mountain shrubland, dominated by Gambel's oak (Quercus Gambelii) and serviceberry is found. Usually restricted to deep soils, dominance may be assumed or shared by



Figure 2. Typical ridgetop vegetation type of the Piceance Basin tracts; scattered pinon-juniper with little ground cover. This photo shows part of site 5RB319, located on tract 5.



Figure 3. Mixture of pinon-juniper vegetation (background) and big sagebrush (foreground) on a broad ridgetop at 5RB411, a site on tract 4 recommended for nomination to the National Register of Historic Places.

chokecherry (Prunus virginiana), snowberry, big sagebrush and especially mountain mahogany (1974:41).

Fauna. The Piceance Basin hosts an abundant and highly varied wild-life population. Cringan (1973) listed 82 species of mammals and 258 species of birds which occur, have occurred or may be expected to occur in the Basin. Lizards and snakes are also quite abundant. Fish and other cold-blooded vertebrates appear in smaller numbers and with less frequency.

The most important wild mammal present in the area is the mule deer (Odocoileus hemionus). Over 15,000 are harvested annually in the basin from what is reputed to be the largest winter deer herd in North America.

The higher elevations support a fairly small but stable elk (Cervus canadensis) population (1973: VII 11). Other common mammals include rabbits, hares, rodents, mountain lions (Felis concolor), black bears (Ursus americanus), bobcats (Lynx rufus), coyotes (Canis latrans), and wild horses (Equus caballus). A small herd of bison (Bison bison) was introduced to the area in 1968, but was later removed at the urging of local ranchers (Hurlbutt 1976:22). It is unknown whether bison were once indigenous to the area.

Black-footed ferrets (Mustela nigripes), gray wolves (Canis lupus), grizzly bears (Ursus horribilis), and bighorn sheep (Ovis canadensis) once occurred in the area, but have now disappeared (Cringan 1973:VII 12).

Numerous species of waterfowl inhabit the area, along with 24 raptor species, including bald eagles (Haliaeetus leucocephalus), golden eagles (Aquila chrysaetos), and eight species of owls. Also present are blue grouse (Dendragapus obscurus), pheasant (Phasianus colchicus), chukar (Alectoris graeca), mourning doves (Zenaidura macroura), and numerous other perching and non-perching birds (1973:VII-14-26).

The large, diverse faunal population of the basin was probably quite attractive to prehistoric man. C. H. Jennings (1975:23) postulates that 27 species of mammals native to the area were of value to pre-industrial man. More data is needed for a better understanding of the relationships between ancient man and the animal resources he exploited.

Uintah Basin

The Uintah Basin is a dissected plateau, bounded on the north by the Uintah Mountains, on the west by the Wasatch Mountains, on the south by the Roan Cliffs and on the east by the Douglas Creek Arch.

Situated just west of the Piceance Basin, the Uintah Basin covers a larger area, and thus exhibits greater environmental diversity.

The areas studied were located in the east-central portion of the basin where conditions are similar to those in the Piceance area. The elevation is generally lower, ranging from 4600 to 8000 feet, with local relief of 200-600 feet. Major drainage is provided by the north-south flowing Green River, which transects the basin and the White River, flowing from the east and converging with the Green just south of the town of Ouray, Utah. Figures 4 and 5 show typical topography and vegetation

Rainfall is generally lower in the Uintah Basin, averaging less than 10 inches per year, with snowfall accounting for approximately 25% of the total in the areas of study.

The geologic stratigraphy is very similar to that of the Piceance Basin, primarily consisting of eocene lacustrine deposits. These deposits contain a large number of fossil paleontological specimens (Miller 1975: 18-21). The Quaternary deposits are mostly lacustrine and alluvial.

The most readily observable difference between the Piceance and Uintah Basins is the vegetation. Two of the three Utah tracts are in areas



Figure 4. Typical topography and vegetation of tracts 7 and 8 in Utah. This view of tract 7 shows sagebrush-saltbush flatlands characteristic of the area.



Figure 5. View of Bitter Creek canyon from tract 9. Pinon, juniper, and sagebrush are the dominant plant species on the relatively flat ridge on which the tract is located.

dominated by a saltbush-shadscale-greasewood shrubland which is virtually devoid of trees. This pattern may be due to higher relative alkalinity and salinity of the soils and less available moisture. The third tract in Utah supports pinon-juniper woodland.

Fauna of the Uintah Basin is similar to that of the Piceance with the addition of the pronghorn (*Antilocapra americana*), as one of the dominant large mammals. Large expanses of open terrain throughout the basin provide good pronghorn habitat. Pronghorn bones were found in association with cultural material in the earliest level of Hogup cave in western Utah, dated at 6400 BC (Aikens 1970:28,98).

Paleoclimatic Reconstruction

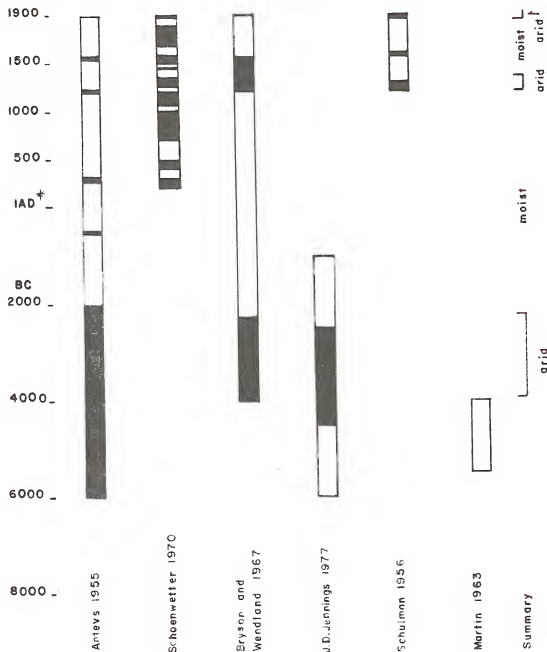
The climate of an area has a profound effect on human inhabitants.

Landform has changed little since the earliest known human occupation of North America, so the major environmental constraints of a given area were largely influenced by climate.

Gross environmental changes have probably not taken place in the Southwest since the end of the Pleistocene (Bryson and Wendland 1967; Schoenwetter 1970; and others). According to Bryson and Wendland (1967: 279) the overall impact of variation in Holocene climates likely resulted in shifting of the boundaries of major biotic zones, but not in changes to the heart of the biotic region.

Climatic variation on a smaller scale has occurred, however. A number of investigations, using such techniques as tree ring and pollen analysis as parameters, have yielded somewhat divergent results (see Fig. 6). Nonetheless, some general patterns can be discerned. For a period following the last glaciation, moist conditions prevailed throughout the Southwest. This was followed by a warm, arid period, sometimes

FIGURE 6
RECENT CLIMATIC TRENDS IN THE SOUTHWEST
GENERALIZED



LEGEND

RELATIVELY ARID



RELATIVELY MOIST



* Scale Change

called the altithermal, which lasted roughly from 6000 to 2000 BC. At Sudden Shelter, in eastern Utah, J. D. Jennings (1977) noted a dry period lasting from 4500 to 2500 BC, preceded and followed by periods of greater moisture. Martin (1963:61), however, sees the period from 5500 to 4000 BC as being warm and moist. Arid conditions persisted until about the first millenia BC, when shifts in the upper atmosphere brought increased moisture into the area (Bryson and Wendland 1967). Moist conditions continued, interrupted by a drought around AD 300 (Antevs 1955 and Schoenwetter 1970), until circa AD 1200 when summer rains diminished. Dry conditions again prevailed throughout the Southwest until the Neo-Boreal (AD 1550-1850) which brought increased precipitation. Since then, higher temperatures and relatively less moisture have typified the area.

Although the data is inconclusive, continued investigation is certain to yield information pertinent to the interpretation of area prehistory. The lack of concise data for the immediate study area allows only broad speculation. Madsen and Berry (1975) postulate that Holocene fluctuation of Great Basin lake levels induced changes in the subsistence strategies of Basin Archaic peoples causing either a demise of those peoples or an exodus to higher ground, possibly the Colorado Plateau. The long, relatively stable moist period from circa AD 300 to AD 1200 was probably conducive to horticulture as practiced by Fremont people known to have inhabited the surrounding area. Based on an apparent gap between Archaic and Fremont occupation of the Great Basin and a shorter gap in the Plateau area (Deluge Shelter), Madsen and Berry (1975: 398) speculate that the locus of Fremont origins may be in the Colorado Plateau. Relative decreases in moisture and possibly increased arroyo

trenching circa AD 1200 may have contributed to the demise of the Fremont culture. Dating the deposit-erosion levels in ephemeral stream drainages of the plateau region will allow more accurate interpretation of existing data.

Present Knowledge of the Region's Prehistory and History

For the purpose of discussion, the prehistoric period will be examined in four stages: Paleo-Indian, Archaic, Horticultural, and Post-horticultural.

Paleo-Indian

Knowledge of Paleo-Indian distribution in the vicinity of the oil shale lease tracts is sparse. Only three sites in the Piceance Basin of Colorado are known to have possible Paleo-Indian components. A probable Paleo-Indian point base was discovered in 1973 at 5RB13, located in Stake Springs Draw. Buckles (1974) found a probable Plainview point base at 5RB202, located about 1 mile south of the White River, at the north end of the basin. In 1976, a midsection and a large biface were found at 5RB385, on a ridgetop overlooking Willow Creek in the southern Piceance Basin. Both artifacts exhibited parallel flaking patterns characteristic of Paleo-Indian workmanship.

The sole evidence of Paleo-Indian occupation in the vicinity of the Utah oil shale lease tracts was found in our fall, 1976, survey. A large, basally ground, projectile point was found on site 42UN504, located on McCook Ridge between Bitter Creek and Sweetwater Canyon. In addition, a basally ground tool, which appeared to be a reworked Scottsbluff point, was found on tract 8, about 2.5 miles east of Cottonwood Wash.

Other Paleo-Indian evidence has been found in areas surrounding the oil shale region. In Utah, Folsom points have been discovered near the towns of Duchesne and Roosevelt. Gunnerson (1956) reported a Folsom find about 100 miles west of the Utah tracts. Hunt and Tanner (1960) described a Paleo-Indian site near Moab, Utah. Paleo-Indian projectile points were found in-situ at the Finley site in southwestern Wyoming

(Wormington 1957:124). In Colorado, author Jones reports that Folsom points have been discovered on the surface near Dinosaur National Monument. Folsom finds have been reported from the Uncompahgre Plateau (Huscher 1939) and from near Grand Junction (Steward 1933). Leach (1970: 205) may have uncovered Paleo-Indian evidence in the deepest level of his excavation at Deluge Shelter in Dinosaur National Monument. Clovis points have been found in the Skull Creek basin south of Dinosaur National Monument (B. Walton 1976).

It is clear that Paleo-Indians were present in and around the oil shale region of Colorado and Utah. More specific data concerning their distribution and culture in this area may be obtained through future investigations.

Archaic

The presence of archaic peoples in the Utah oil shale region has been demonstrated by Berry and Berry (1976:31) during their survey of the U-a and U-b oil shale tracts. McKean points recovered from the area indicate that Archaic hunters occupied the area 3,000 to 5,000 years ago. Our 1976 surveys of three Utah tracts resulted in the discovery of two projectile point bases of probable Archaic origin.

In the Piceance Basin, artifacts of Archaic origin have been reported by C. H. Jennings (1975:31) on the C-b oil shale tract and by Olson *et al.* (1975:32) in the vicinity of the C-a tract. Several projectile points of apparent Archaic types were recovered during our 1976 survey.

The prominent excavated sites in Utah and western Colorado which have Archaic components are Danger Cave (J. Jennings 1957), Hogup Cave (Aikens 1970), Thorne Cave (Day 1964), Deluge Shelter, and other Dinosaur National Monument sites. Wormington and Lister (1956:83-84) believe that some sites on the Uncompahgre Plateau have definite Archaic components

which are similar to those from Deadman Cave (Smith 1952) and Hells Midden (Lister 1951). Due to the lack of excavated sites with Archaic components in the Piceance Basin, the Archaic stage is not well understood for this area.

The wide variety of floral and faunal resources available in the Piceance Basin would seem to have been ideal for an Archaic (hunting and gathering) existence. We therefore expect that further archaeological work in the basin will continue to uncover Archaic sites, and further our knowledge of Archaic peoples in this area.

Horticultural

The horticultural Fremont people were present in Utah and extreme western Colorado for a rather brief but well documented period. J. Jennings (1974:319) described the Uintah Fremont occupation as extending from about 550 A.D. to 1000 A.D. Breternitz (1970:160) dates the Cub Creek phase of the Uintah Fremont as late as 1150 A.D. Berry and Berry (1976:32) found no evidence of Fremont occupation during the U-a and U-b survey, but did recover corn from site 42UN118. There is an absence of pottery at site 42UN118, while at site 42UN366, there are pictographs similar to those found at Basketmaker II sites in northeastern Arizona. According to the Berrys, this suggests the presence of peoples functioning at a Basketmaker II level of technology.

No Fremont pottery, architecture, or corn was discovered during our 1976 survey of three oil shale tracts in Utah. We did, however, locate a rock art site (42UN503) in Bitter Creek Canyon north of McCook Ridge. The style of the pictographs at this site is strongly reminiscent of Fremont rock art, and is particularly similar to the style of Fremont rock art in the Douglas Creek drainage of Colorado, just south of Rangely.

To date, no definite evidence of horticulture has been discovered in the Piceance Basin of Colorado. Several Piceance Basin sites, however, have yielded Fremont artifacts. Olson *et al.* (1975) assign a Fremont affiliation to ten sites discovered during their 1975 survey of the C-a oil shale tract and surrounding areas. They write that five additional sites have possible Fremont affiliation. Apparently, all except two of their Fremont sites were designated as such through stone artifact typology. Pottery identified as Turner Grey II was found on site 5RB528 (Univ. of Denver site #Colo.H:3:15), and sherds identified as Turner Grey - Cisco variety were recovered from site H:3:21. Fremont pottery was uncovered during the excavation of 5RB123 by Colorado State University crews in 1974. This site is located near Piceance Creek in the north-central part of the Piceance Basin. Several sherds of Fremont pottery were recovered from the surface at 5RB144, a ridgetop site overlooking Black Sulphur Gulch. One sherd of Fremont pottery was found at 5RB451, located on a ridge overlooking Piceance Creek in the northcentral part of the Basin. A rock art site is located near Square S Ranch on the Piceance Creek. This site (5RB271) was discovered and test excavated by James Grady (personal communication), a University of Colorado graduate student. Grady believes this is a Fremont site on the basis of the pictographs and some apparent aboriginal field patterns evident on an aerial photograph.

At the present time, we are not convinced that the Fremont peoples were practicing horticulture in the Piceance Basin. We feel, however, that they definitely were using the Basin as a hunting or gathering area. They may have been seasonally moving east from Douglas Creek, which is located just west of the Piceance Basin.

Post-Horticultural

The reasons for the disappearance of the Fremont horticulturalists are not clear, and this is a much debated subject. There is presently no evidence of Fremont activity in northeastern Utah after about 1150 AD. On the basis of historical accounts, Steward (1974:53) states that the Uintah Basin was uninhabited in 1776 at initial white contacts. The Ute Indians occupied northeastern Utah in the early 19th century following their acquisition of the horse. The Utes were apparently the only inhabitants of the Uintah Basin until white settlers arrived and pushed them out.

In discussing the Piceance Basin area, Steward (1974:53) is somewhat unclear as to what Indian group occupied the basin at the time of white contact. He states that the Shoshoni (Cumanches Yampiricas) had horses and "had a strong hold on the Yampa and White River regions of northwestern Colorado." He goes on to say that the Sabaguana Utes were located just south of the Shoshonis. No clear dividing line between the two groups is given, and it is possible that both used the Piceance Basin until the Utes pushed the Shoshoni out of northwestern Colorado in the early 19th century. The Utes then occupied the Piceance Basin until displaced by white settlers. Evidence of Ute (and possibly Shoshoni) occupation of the Piceance Basin is common in the form of pottery, wickiup structures, trade beads, and projectile points.

Spanish era. The first documented European penetration into northwest Colorado and northeastern Utah occurred when the Dominguez-Escalante expedition passed through the area in 1776. According to Pederson (1972: 596-597), however, Spanish explorers may have entered the region in the 17th century. From Spanish records, Pederson found that a Padre Alonzo de Pasoda may have entered northwest Colorado or Utah around 1678 in

accordance with a royal order to investigate reports of fabulous lands in the north called "Quivira" and "Tegwayo."

In 1776, Fray Francisco Dominguez received orders to locate a feasible route to new missions in California. Although Dominguez was the official leader, the expedition was named after Fray Silvestra Velez de Escalante for the excellent journal he kept of the excursion. Escalante was a Franciscan missionary stationed at the pueblo of Zuni in New Mexico. A route to the west coast from New Mexico was the primary motive for the expedition for several reasons (Bolton 1951:9). First, the Apaches in Arizona effectively blocked a more direct route through Arizona. Second, although Spain could reach the California ports by sea, prevailing winds and ocean currents running from north to south along the California coast made the trip undesireably long and uneconomical. Finally, Russian and British fur trappers penetrated the Oregon-northern California frontier from the north. Thus, Spain needed a reliable line of land communication to protect California from encroachment (Fritz 1941:63-64).

On July 29, 1776 the Dominguez-Escalante expedition set out for the country of the Utes. On September 5th, they crossed the Colorado River near the present town of Grand Valley. The expedition then traveled up Roan Creek, north across the Roan Plateau, and then descended Douglas Canyon along an old Indian trail. On the canyon walls they saw several paintings left by previous Indian residents. Because of the paintings Escalante and his companions named the canyon they traversed Cañon Pintado or Painted Canyon. Parts of Douglas Canyon on Escalante's route are included in the Canyon Pintado Historic District today. The expedition reached the White River, which they dubbed the San Clemente, crossed it and camped on the north bank in a meadow near the present town of Rangely.

Escalante dismissed the area as unsuitable for settlement. From September 10th through September 13th the expedition traveled in the evenings along the arid Yampa Plateau.

On September 13th they reached the Green River and camped on its banks near six large cottonwoods which were recognizable in the 1950's. On September 16th, the Spaniards crossed the Green River about six miles above the town of Jensen and traveled through the Uintah Basin, following the Strawberry Creek Valley. They arrived at Utah Lake on September 23rd. The expedition turned south at Utah Lake and returned to New Mexico in December, 1776. Although they failed to reach California, the two Franciscans provided the first significant information on the region.

Between 1765 and 1821, private traders entered Colorado and Utah to trade for horses, slaves and furs. Few records of their activities exist because the Spanish governor of New Mexico declared such expeditions illegal in 1712. Escalante mentions two different trading expeditions that made it to the Gunnison River prior to 1776.

Mauricio Arze and Lagos Garcia led several men on an expedition into Utah in March of 1813. The Arze party reached the Sevier River in Utah and may have been in the Uinta Basin. Arze returned to New Mexico with 109 pelts, indicating the potential for trade in the area. In 1827, Spain opened the Old Spanish trail which tapped the trade in the Great Basin and linked New Mexico and California. Branches of the trail entered the Uinta Basin. Taos and Santa Fe served as a supply line for the Uinta Basin and surrounding areas until the 1850's when the Mormons suppressed the trade in Indian slaves. Although Spain, until 1821, and later Mexico, until 1848, claimed western Colorado and Utah, the long distances made their control nominal at best.

The fur trade frontier. Trends in European fashion were responsible for creating the mountain man, possibly the most romanticized figure in the American West. Demand for beaver hats drew trappers to the rivers and streams of the Rocky Mountains. The fur frontier was a significant development in American history because trappers thoroughly explored the West and developed trails in their quest for beaver. Unfortunately, many of these men were illiterate and few who could write kept journals. Thus the record of the mountain man is very incomplete.

When the fur trade boomed in the 1820's, Utah became an area of convergence for trappers. The journal of one of these trappers, William Henry Ashley, provides the first important record of exploration in the Uintah Basin since Escalante (Morgan 1964). Although Ashley did not get into the White River-Piceance Creek area, it is certain that trappers penetrated the region by the 1830's.

Trading posts. In the 1830's the first permanent residents in Utah opened trading posts in the Uintah Basin to control the trading activities in the region. Antoine Robidoux was the most important figure in this development in western Colorado and northeastern Utah. A French-Canadian from St. Louis, Robidoux traveled to Santa Fe in 1823 and associated himself with the Taos fur trade in 1825-1828. In 1830, Robidoux established a post called Fort Uncompahgre on the Gunnison River just west of Montrose, Colorado (Wallace 1956:261-274). He later established Fort Robidoux southwest of Whiterocks in Uintah County, Utah. Also called Fort Unity or Fort Uintah, the post was a collection of cabins and storehouses enclosed in a stockade (Morril 1941:1-12).

Contemporary descriptions portray the post as a lively center for trappers, well patronized by the Utes, and a center for slave trade in Indian captives. Sage (1947:96) observed that the post served as a center

for trappers working the Bear, Green, and Grand, or Colorado Rivers and tributaries. The Shoshonis and Utes traded horses, beaver pelts, and other hides for tobacco, ammunition, knives, beads, firearms, etc. Fort Robidoux was destroyed in 1844 or 1845. One account (Jackson and Spence 1970) relates that the Fort was burned by Indians while another (Morgan 1953:216) says that the Fort was burned by the American Fur Company to prevent its use by the Hudson Bay Company.

Another important post in the region was Fort Davy Crockett. It was located on the Green River in Brown's Hole. Kit Carson traveled through Brown's Hole with seven men in 1837 and referred to Fort Crockett as Brown's Hole. The owners employed Carson as a hunter and a guide for trading expeditions (Alter 1932).

Most sources state that the occupants abandoned the post in haste due to reports of a large band of Blackfeet in the area. In 1844, Fremont descended into Brown's Hole and camped near the ruins of the fort.

Other posts were constructed in the Uintah Basin, but none attained the importance of Fort Robidoux. Kit Carson built a stockage near the junction of the White and Green Rivers, for the purpose of spending the winter. In the 1830's a party of Hudson Bay Company trappers led by Sir William Drummond Stewart reportedly used Fort Carson as a base (Pederson 1972:607).

With the decline of the fur trade, and increasing Anglo-Indian friction, the Uintah Basin-White River became a backwater as events in the 1840's wrought great changes that would soon alter forever the American West.

Era of exploration, 1844-1876. John Charles Fremont led the first United States Government expedition into the Uintah Basin in 1844. As already mentioned, he visited Fort Robidoux and the site of Fort Crockett in

Brown's Hole. Fremont's mission was to locate feasible routes to the Pacific coast. In 1845 the army ordered him to explore the Colorado region to establish communication links in anticipation of a war with Mexico. From the Colorado River, Fremont traveled north to the White River and followed it to the Green and then on to California. Fremont's maps and reports measurably increased American knowledge of the far West (Jackson and Spence 1970:706-708).

In 1849, other travelers, trying to find an easy route to California's gold fields attempted to travel on the Green River to the California coast. The discovery of gold in Colorado in 1858 led to attempts to locate a direct route from Denver over the Rocky Mountains to Salt Lake City. In 1861, Captain Edward L. Berthoud, guided by Jim Bridger, traveled through the White River Valley and Uintah Basin, locating a route west that was never utilized (Pederson 1972:613). In 1861, Brigham Young dispatched a reconnaissance party to the Uintah Basin to scout the area prior to Mormon colonization. The exploring party returned with such an unfavorable report on the basin that Young abandoned the project. Meanwhile various officials had, in 1860, recommended the Uintah Basin as a possible Ute reservation. Young approved the proposal in 1861, after the Uintah expedition returned its negative report.

In Colorado, prospectors penetrated the White River country in 1860 seeking precious metals. They reported little gold, but described the area in very positive terms. In the 1860's no one had contributed any substantial knowledge of the Green River country since Fremont. Hence, John Wesley Powell was assigned the task of exploring the area more thoroughly. Powell commenced work in 1868 and wintered in Powell Park just west of the White River Indian Agency. In 1869 Powell set out from

Green River Station, Wyoming, with ten men and four boats. Powell and members of the expedition were optimistic about the potential to develop farms and ranches in the river valleys. In 1871, Powell conducted his second expedition in the area (Utah St. Historical Society 1947).

In the 1870's, F. U. Hayden, a physician turned geologist, conducted surveys in western Colorado, and entered the Piceance Creek area in 1876. Hayden (1878:352-356) reported abundant water in the Piceance Basin, but observed a scarcity of wood and timber. Because of the geographical remoteness, the aridity of many areas, and the presence of the Utes, the Uintah Basin and White River areas were among the last lands to be settled in Utah and Colorado.

The Utes. The Spanish occupation of New Mexico in 1598 had a significant impact on the Utes. The horse was the greatest Spanish contribution to the Utes. Metal items such as knives and cooking utensils also contributed significantly to their artifact inventory. The distance of the territory from the Spanish New Mexico worked to the advantage of the Utes. The Utes were close enough to trade with Taos and Santa Fe, bartering slaves and furs for horses and other goods. Though the Utes were close enough to trade with the Spanish, their land was too distant to fall under Spanish political control.

Spanish records suggest that they were familiar with the Utes, or Yutas, by the 1620's at the latest. In 1649, the Spanish made a treaty with the Utes guaranteeing a peaceful relationship. The treaty broke down, however, for as the Utes and Comanche fought the encroachment of the Apaches, they frequently raided pueblos in New Mexico from 1700 to 1748. In 1776, Spanish-Ute relations had improved to the point that the Escalante expedition traveled through Ute country unharmed (Tyler 1954:343-361).

In the early 19th century Spanish-Ute relations remained amiable, with the Utes becoming relatively wealthy Indians from trading in Taos and Santa Fe. In the 1840's events transpired that would challenge Ute control of the area and begin the process that would result in their total displacement from their lands thirty-five years later. The demise of the fur trade ended the era of the mountain men, and the Utes soon met a new type of Anglo-American, the farmer, rancher and miner. The Utes had no comprehension of the Mexican cession of their land to the United States in the Treaty of Guadeloupe-Hildago in 1848.

The coming of the Anglo-Americans, 1847-1879. The first settlers in Utah concerned with farms and livestock were the Mormons led by Brigham Young. Young entered Salt Lake Valley in July, 1847, with 147 people, and several days later laid out plans for Salt Lake City. By the end of 1848, the area had a population numbering two thousand. The Mormons fenced off five thousand acres and initiated ambitious irrigation projects that would soon make their arid surroundings produce plentiful harvest (Bancroft 1889:385-401).

Lacking any sort of government, Brigham Young, in 1849, provided leadership in the establishment of a constitution and government for the state of Deseret. Although patterned after governments in eastern states and cloaked in republicanism, the government was in reality a theocracy. In 1850, Congress refused to admit Deseret as a state or recognize it as a territory. Although Congress was unsympathetic to Mormonism, the slavery issue largely determined the political status of Deseret. Deseret included all of Nevada and Utah, the western slope of Colorado, most of Arizona, and parts of California, Oregon, Idaho, and Wyoming. But in 1850, Congress formed the Territory of Utah, which included all of Utah, most of Nevada, the western third of Colorado, and part of Wyoming.

In the 1850's the Mormons concentrated on the development of farms, improving irrigation systems, and providing services for emigrants to California. The Mormons and Utes did not come into conflict until the Mormons settled at Fort Utah (Provo), near Utah Lake. The first armed confrontation took place here in 1850, and according to Mormon records, fifty Utes were killed (Bancroft 1889:308-309). Continued settlement along the Wasatch Front displaced the Tumpanuwache Utes from their hunting grounds until this band experienced a severe food crisis. The Utes were also angry over the disruption of their horse and slave trade caused by the Mormons (O'Neil 1973:29). The food crisis finally triggered the Walker War in 1853, which resulted in the defeat of the Utes.

In 1860, both the territorial and the Federal governments reached a consensus that the removal of the Utes to a reservation offered the best solution for Utah's Indian problem. President Lincoln established the Uintah Reservation by executive order on October 3, 1861. Congress ratified Lincoln's order in 1864.

The Tumpanuwache Utes resisted removal to the Uintah Basin as they correctly regarded it as a very inhospitable area. Suffering severely from a lack of food, this band of Utes initiated another war in 1864. The Black Hawk War lasted from 1864 to 1867. Minor livestock raids continued until 1869. In 1865, Young and Commissioners of Indian Affairs O. H. Irish concluded a treaty with the Utes at Spanish Fork, Utah, but Congress refused to ratify it. The conflict dragged on until 1867, when most of the Tumpanuwaches entered the reservation. A treaty never ended the war, the raids merely ceased. The war proved expensive, costing the Mormons over one million dollars, but the Utes no longer were a problem to settlement in central Utah (Lyman and Denver 1970:21-27).

Meanwhile, gold in Colorado brought considerable pressure to bear on the Utes after 1859. In 1868, the Colorado Utes, led by Chief Ouray, signed a treaty agreeing to accept a reservation that gave them the western slope of Colorado, west of the 107th meridian, and a section in Utah east of the Green and Colorado Rivers. The treaty established agencies at Los Pinos and White River. In the early 1870's miners and ranchers violated the treaty and entered the San Juan Valley, when gold and silver strikes were located. Rather than expel the whites, the Federal government negotiated the Brunot Agreement with the Utes in 1873. The Utes ceded the San Juan area to the United States, although they retained hunting privileges in the ceded area (Fay 1970:10-24). As towns sprung up in the Brunot cession and Colorado achieved statehood, pressure to remove the Utes mounted (Jocknick 1968:56-75).

Ironically, the incident that resulted in the expulsion of the Utes from Colorado occurred at the White River Agency, not in the areas regarded more desirable for settlement south of the Grand Valley. Nathan Meeker, the protege of Horace Greeley and the founder of Greeley, Colorado, accepted the appointment as agent at White River in 1878. A sincere and well-meaning man, Meeker was far too idealistic and over-zealous for the job. Meeker attempted nothing less than the conversion of the White River Utes into stout yeomen farmers in the Jeffersonian mold. Inevitably, he alienated the White River band. Tension increased when Meeker attempted to plow a race course and pasture at the agency, located in the east end of Powell Park. A Ute named Johnson assaulted Meeker when he suggested that Johnson kill his horses and take up the plow. Meeker requested troops to protect the agency, thus setting stage for disaster. In September, 1879, Major T. T. Thornburgh led a contingent of troops from Fort Fred Steele, Wyoming. The Utes ambushed Thornburgh's command at Milk Creek,

killing Thornburgh and thirteen men, pinning the force down for three days. At the White River Agency the Utes killed Nathan Meeker and eleven male employees, carrying off the women and children. Large numbers of troops were dispatched to the White River, and only the cool heads of Chief Ouray and others prevented further violence (Sprague 1957).

The damage had been done by this time. The Utes signed a treaty in 1880, surrendering their claims to all lands in Colorado except for a minute portion in southern Colorado. In 1880, the White River people were moved to the Uintah Reservation, located in the western part of Uintah Basin. Although the Uncompahgre band had not participated in the trouble, they were forced onto the newly-formed Uncompahgre Reservation in the south half of Uintah County in 1881. Hence, by 1882, the Federal government completed the removal of the Utes from Colorado into the two reservations in the Uintah Basin.

Beginnings of the cattle industry. The 1860's saw the development of the trail drive and open range cattle industry. By the 1870's the open range cattle industry had developed on the plains of Wyoming, Colorado, Nebraska and Kansas (Billington 1974:582-598). The numbers of cattle in Utah increased steadily in the 1850's, and with the rapid population growth in California, Utah became an exporter of cattle. In 1860, there were 34,000 cattle in Utah, but little interest was shown in developing the industry because of serious losses in the winter of 1855-1856 (Walker 1964:182-184).

In Colorado John C. Dawson reportedly brought the first cattle north from Texas in 1859. In 1864, cattlemen brought the first large numbers of cattle from Texas, totaling around 100,000 head. By the 1870's cattlemen were entering the mountain parks, the Yampa Valley and Brown's Hole. During the 1880's the open range east of the Continental Divide filled with cattle and between 1885 and 1890 the ranges in Utah and Western Colorado also filled.

Settlement of the Uintah Basin. Whiterocks is the oldest surviving settlement in the Uintah Basin. Lt. Pardon Dodds, the first agent for the Uintah Reservation, located the site of Whiterocks on Christmas Day, 1868. After being replaced as agent in 1872, Dodds entered the Ashley Valley in 1873 and started the first ranch there, which became one of the more prominent ranches in the basin (Daughters of the Utah Pioneers 1947:9-10). In 1877, Thomas Bingham led the first group of settlers into Ashley Valley, establishing two settlements, Old Ashley Town (2 to 3 miles northwest of Vernal) and Jensen on the Green River. A. C. Hatch, a prominent rancher, was the first settler on the present site of Vernal in 1878. That year there were about 100 inhabitants in the Ashley Valley.

Numerous obstacles hindered development in the valley. In 1879, grasshoppers and a severe winter caused a food shortage that necessitated food rationing. The winter killed many cattle, giving ample warning of the vagaries of the cattle business. The Ute uprising in Colorado also threatened the settlements in Ashley Valley, forcing many of the settlers to collect in Vernal for protection. The settlers weathered these crises, which proved to be a turning point in that the settlers knew they could prosper in the Uintah Basin (Daughters of the Utah Pioneers 1947:9-10). In 1880, the territorial legislature formed Uintah County from parts of Wasatch and Sanpete counties. The new county had a population of 799 according to the 1880 census.

In the 1880's, the residents of Uintah County established a viable and stable community. Vernal became the county seat and economic center of the county with the towns of Maeser, Naples, Jensen, and Hobbsville growing at a slower pace.

In the 1880's and 1890's the livestock industry became the major enterprise in Uintah County, as it is today. Only two percent of the county

was farmland and much of the remaining land was used for grazing. Thomas Caldwell, Sr. introduced sheep in the Naples area in the 1880's. The first large herds of sheep entered the county in 1885 and 1886, and there was little friction between Utah cattlemen and the sheep ranchers. In eastern Uintah County there were very few homesteads and sheep and cattle utilized the range for grazing. Aside from the elements, rustlers from Brown's Hole proved to be the major problem for ranchers well into the 20th century (Daughters of the Utah Pioneers 1947:286-288). In the 1890's, the numbers of cattle in the county decreased because of hard winters and overgrazing. Then, around 1900, the livestock industry achieved new stability with new breeds of cattle, controlled grazing, rapid growth in the sheep industry, and hay ranches to feed the cattle in the winter months (Walker 1964:182-196).

Minerals found in the Uintah Basin include gold, silver, coal, asphalt, oil shale, oil and natural gas, but the substance that has had the greatest impact on Uintah County is gilsonite deposits, which are located in a 1500 square mile area of the Uintah Basin. Once called Uintahite, the substance is named for Samuel Gilson, who with Bert Seaboldt, promoted and developed uses for it. Though gilsonite was known at least by the 1870's, there were no efforts to develop the product until Sam Gilson located samples in the 1880's and filed claims. Unfortunately, the claims were located on the Uintah Reservation. After considerable pressure and lobbying, Congress agreed to remove 7000 acres from the reservation, providing Gilson's newly-formed company paid the Utes twenty dollars per acre, and providing the Utes agreed to the sale. The Utes approved and Gilson's company paid the money.

In 1888, Gilson and Seaboldt sold their gilsonite properties to a St. Louis firm which made the term gilsonite stick (Remington 1959:36-65). In 1888, the St. Louis mine commenced operations, shipping gilsonite by wagon to Price. As the Gilson Asphaltum Company shifted operations to eastern Utah, the company built a series of towns near the mines at Dragon, Watson, Rainbow and Bonanza. The company constructed Dragon near the Black Dragon Mine in 1905. In 1911, an explosion and fire in the Black Dragon mine forced the company to close operations, and Dragon died out shortly thereafter.

The company operated mines at Rainbow from 1911 to 1935. Watson replaced Dragon as a terminal, having a depot, store, hotel, and boarding house. In 1938, operations shifted to Bonanza where they continue today. Watson became a ghost town shortly after the railroad shut down in 1939 (Remington 1959:152-153).

Uintah County continued to grow in the 20th century. According to census records, the county had a population of 8,470 in 1925 and 9,035 in 1930. The main economic enterprises continue to be stock growing, transportation services, and activities connected with oil, natural gas, coal, asphalt, and gilsonite.

Settlement of the White River county. After the Meeker massacre in 1879, Colonel Wesley Merritt established a post on the White River which was occupied by the army until 1883. The War Department sold the buildings to citizens at a public auction on August 13, 1883. The new owners named the new town Meeker in honor of Nathan Meeker. Meeker was incorporated in 1885, and in 1887, Mayor W. H. Clark filed claims on town lots in behalf of Meeker's citizens. Meeker became the first and, for twenty years, the only incorporated town in northwestern Colorado (Bury and Bury 1972:6-7).

By 1887, Meeker was a bustling community of 300 and served as a trade center for northwestern Colorado. The White River Valley was a part of Summit County, Colorado Territory in 1861. In 1883, the White River area became a part of Garfield County. After two attempts to form a county in the White River area failed in 1885 and 1887, a bill creating Rio Blanco County finally passed in the Colorado General Assembly, in 1889. The county encompassed 3,219 square miles, including the Piceance Creek area.

Other towns located in Rio Blanco County were White River City, Rangely, and Rio Blanco. The major economic activity in Rio Blanco County was the cattle industry, just as it is today. In 1883, there were very few cattle in the White River Valley. In 1884, drovers brought in cattle from Texas, Arizona, the Colorado plains and Utah. The L07 Company, one of the biggest ranches in the area, brought 3,333 cattle from Cedar City, Utah in 1884. In 1889 and 1890, the cattle industry in Rio Blanco County suffered a severe blow when a dry summer made winter forage scarce, and freezing rains that winter killed an estimated sixty to seventy-five percent of the cattle in the county (Bury and Bury 1972:114-122). By the 1890's over-grazing, predators such as wolves, and small homesteaders taking up the good land in the valleys and gulches, led to the demise of the open range cattle industry on the western slope, accelerating the trend toward the large hay ranch.

Sheep were not welcomed by cattlemen, but two of Rio Blanco's early pioneers, George Allsebrook and Duncan Blair reportedly brought the first sheep into the area from Utah, probably in the 1890's. Friction between sheepmen and cattlemen culminated in a pitched battle on Yellowjacket Pass in 1920. This was the last major confrontation between sheep and cattle

ranchers in the county (Athern 1976:84). Sheep actually added to the economic stability of the livestock industry.

After 1900, promotional pamphlets advocated dryland farming in the dryer areas of the White River region and attracted numerous homesteaders to marginal land. Homesteading remained a tough proposition after 1900 as dryland farming methods generally failed. Many families had very little cash, and lived at a near subsistence level. Deer, rabbits, and small garden plots prevented severe food shortages for many of them. In the 1920's a price depression in the agricultural sector and a drought weakened the homesteaders, and the depression of 1929 initiated the mass exodus of most homesteaders from their property. The large cattle ranch replaced the small farms and ranches.

The censuses from 1890 to 1920 indicated that Rio Blanco County's population grew steadily in this period. But probably as a result of the economic problems in the 1920's, the county's population declined from 3,125 in 1920 to 2,180 in 1930.

Coal had been mined in Rio Blanco County prior to 1900, but with the 1920's rich bituminous deposits remained untouched. In the 1920's trucks hauled numerous loads of coal to Rifle from several mines in Rio Blanco County (Bury and Bury 1972:35). In 1919, oil men located and developed the Rangely oil field, which is still producing today. Gilsonite and asphaltium were also mined in the Rangely area around 1900. Publicity about oil shale in the area (Winchester 1916) triggered a stampede into western Colorado and eastern Utah around 1918 (Mitchell 1918). The Piceance area was known to have deposits, but most of the excitement centered around deposits in the Grand Valley. Continental Oil Shale Mining and Refining Company built a retort on the upper Piceance, 2.5

miles west of Rio Blanco in 1920. The plant never produced any significant quantities of oil and closed down in 1928 when the company ceased all operations (Leonard 1975).

The 1918 boom collapsed in the 1920's because of high costs, the discovery of new oil fields, unscrupulous promoters, a great deal of litigation over claims, and finally the depression of 1929.

Piceance Creek settlement. The first settlers entered the Piceance Basin in 1883 and undoubtedly squatted on what was then a military reservation. The first families staked out homesteads in the creek and gulch bottoms, mainly along Piceance Creek, Yellow Creek, Ryan Gulch, Black Sulphur Creek, Hunter Creek and Willow Creek.

Most of the residents in the Piceance came from Leadville or one of the nearby mining camps. In 1883, the Meeker Herald of August 15 claimed that Piceance Creek, a garden spot, was completely taken up with large herds of cattle.

Around 1900, many of the small ranches began to be absorbed by larger ones as it became obvious that a larger economic base was necessary for a successful ranching operation. The Square S Land and Cattle Company began purchasing land in the Piceance Basin in 1927 and owned several thousand acres by the 1930's.

Today there are three classes of land ownership in the Piceance Basin. First, there are several large ranches that continue the tradition of cattle raising in the basin, notably the P-L Ranch, the Boies-Norell company and the Burke Ranch. The Colorado Division of Wildlife purchased the Square S land in 1956 and thus owns a large number of the old homesteads which are leased for grazing and hay. Last, the oil companies own most of the remaining homesteads in anticipation of the future exploitation of oil shale deposits.

PURPOSE AND PROBLEMS

The principal motivation for this study is to provide information on the cultural resources of the oil shale development region, specifically the nine proposed in situ lease tracts discussed previously. The information is necessary to assess the impacts of in situ processing of oil shale on the finite, fragile, and non-renewable cultural resources of northwestern Colorado and northeastern Utah. Assessment of impact is based on the evaluation of the known and potential historic and scientific values of the cultural resources of the region.

Determination of the historical significance of specific archaeological sites is dependent, in the case of prehistoric sites, on the potential importance of the information they possess concerning past human behavior. Sites dating from the most recent historic period are evaluated in terms of their relationships to important persons or events, their potential as examples of architectural styles, or their suitability as examples of craftsmanship. The latter criteria are, at best, difficult to apply to prehistoric sites in the area of this study with exception of rock art sites.

The scientific values of archaeological sites of any period are derived primarily from their relationship to specific problems in the study of the human past. This issue has been widely discussed in the archaeological literature (e.g. Watson, LeBlanc, and Redman 1971) and needs no further discussion here. What must be made clear, however, is the fact that determination of scientific value is made on the basis of the relationships between the site's information and what are presently perceived as important problems on regional and national scales. The kinds of problems seen as important in a given region are dependent on the state of knowledge in the region and the training and research interests of the evaluator.

Our primary goal for this project was collection of information on the range and variation in the cultural resource assemblage on or near the nine nominated in situ oil shale lease tracts (Fig. 1) and to evaluate the impacts of the proposed action on the resource. The methodology relevant to meeting that goal is not wholly consistent with the kind of methodology necessary to study a specific scientific problem. However, the reconnaissance effort described here does contribute to our knowledge of the regional history in the form of providing inventory information on the location and content of sites which may produce information relevant to the following five potential research areas:

- 1) A virtually total lack of information on the Paleo-Indian period in the region. At this time any Paleo-Indian site has great importance.
- 2) A need to test hypotheses put forward by Madsen and Berry (1975) and Berry and Berry (1976) concerning the periods of occupation and abandonment of the Uintah Basin and neighboring parts of northwestern Colorado.
- 3) A need for study of the appearance and disappearance of the Fremont.
- 4) A need for improvement of our understanding of the non-horticultural segment of the Fremont subsistence base.
- 5) A need for information on pre-contact Ute and Shoshoni relationships in the oil shale region.

We have also identified sites as having the general potential for yielding information important to future problems in prehistory. We are not clairvoyant and cannot determine precisely what problems will be important in future archaeological research. The procedure employed in

identifying sites with potential for contribution as to yet unrecognized or inaccessible problems has been to identify those sites which have the greatest variety in their data and, therefore, the greatest potential for yielding information on a variety of subjects.

We have made no attempt to deal rigorously with any of the potential research areas noted above. Such an effort can only be made after the operationalization of the many variables relevant to each of the problems. The following discussion, then, is essentially descriptive and can only indicate the research potential of the oil shale region.

METHODS AND DATA SOURCES

Field Methods

Field work began on October 1, 1976. The field crew consisted of David A. Weber (Field Supervisor and Crew Leader), Kevin T. Jones (Crew Leader), Gregory M. Holmes, Penny J. Price, Herbert Rodriguez, Matthew S. Freedman, J. Sandy Stevens, and Michael R. Finn.

Forty percent of the surface area of each of nine oil shale lease tracts, excluding areas surveyed during previous projects, was to be surveyed for prehistoric or historic archaeological evidence. The portions of the tracts to be surveyed were chosen by three criteria: 1) an attempt was made to sample proportional amounts of ridge tops, valley bottoms, and grades of less than 15%; 2) areas which past experience indicated were likely locations for site occurrence were emphasized; and 3) an attempt was made to distribute the sampled areas so representative coverage of all parts of the tracts would be obtained.

Surveys were conducted by two crews of four people each. The crews walked the ground spaced at intervals varying from 3 to 40 m. apart, depending on the terrain and vegetation. In surveying large blocks of reasonably flat land, compass lines were walked and section and quarter-section markers used for orientation. When surveying ridgetops and edges, the surveyors followed the contour.

When an archaeological site was found, a datum point was chosen near the center of the site. From that point, transect lines were established at right angles to each other, the datum point being the

intersection (Fig. 7). On sites which were obviously elongated, the transects were placed along the long and short dimensions. Transects on non-elongated sites were run east-west and north-south, or some other convenient direction in cases where obstructions were present. All cultural material within 2 m. of the transect center lines was collected. In addition, projectile points and other objects susceptible to being picked up by passers-by were collected, whether or not they were on the transects. Each artifact collected was mapped by measuring its distance from the datum point using a 50 m. tape and determining its bearing from the datum using a tripod mounted Brunton Pocket Transit, or surveyor's compass mounted on a staff. In cases where the site was too large for mapping artifacts from the datum, stations were established in relation to the datum and the artifacts mapped in from the stations. Firepits, structures, and other features were described and similarly mapped in relation to the datum or stations. No transects were established on sites which consisted only of one structure or had too few artifacts on the surface to make transecting worthwhile.

All sites were recorded on Colorado Archaeological Survey - Site Inventory Record forms, obtained from the Office of the Colorado State Archaeologist. At the Colorado sites, 20 inch long metal stakes, stamped with the site number, were driven into the ground at the datum and surrounded by a small cairn of rocks to permanently mark the spot. Datum points at Utah sites were not marked. No test excavations were made due to lack of time, although they would have been desirable in several cases.

Each site was photographed in black and white and in color. Artifacts recovered were cleaned, labeled, and cataloged using standard



Figure 7. Method for recording sites. One crew member completes the site record form while another lines up a transect for collection. The staff is at the datum point and has a surveyor's compass mounted on it. The site is 42UN506 on tract 9 in Utah.

procedures. Colorado artifacts were permanently stored at the Laboratory of Public Archaeology, Fort Collins, Colorado. Utah artifacts will be permanently stored at the Utah Museum of Natural History in Salt Lake City, Utah.

Prehistoric Data Sources

The archaeological literature relating directly to the in-situ oil shale lease tracts was sparse because only a small portion of the tracts had been previously archaeologically surveyed. None of tracts 2,7,8, or 9 had been examined prior to this project. All of tract 3 was surveyed in 1975 by a University of Denver crew (Olson et al. 1975) during a reconnaissance of oil shale tract C-a and the surrounding area. A portion of tract 3, plus parts of tracts 1,4, and 6 were surveyed in 1973 and 1974 by field crews from Colorado State University. Hurlbutt (1976) based his study of environmental constraint and settlement predictability in the Piceance Basin on these surveys. A strip through tract 4 was examined in 1974 during a survey of a pipeline route proposed by Western Slope Gas Company (C. Jennings 1974). Parts of the tracts 1 and 5 were surveyed in the summer of 1976, as part of a Bureau of Mines Pilot Oil Shale Mine development, by the Laboratory of Public Archaeology at Colorado State University (C. Jennings and Spitzer 1976).

One site on tract 1 was discovered and test excavation in 1976 by James Grady, graduate student at the University of Colorado, as part of his PhD dissertation research. His report has not been completed as of this writing, but he provided information on the site 5RB271 through personal communications.

Prior to the initiation of field work, the records of the Colorado State Archaeologist's office for Rio Blanco County were checked and locations of all sites on or near the Colorado Tracts were recorded. During field work in Utah, Curtis Tucker, recreation specialist for the Bureau of Land Management, Vernal District, informed us that he knew of no archaeological sites on the three Utah tracts. He did inform us of the location of a rock art site near tract 9, which we later recorded as 42UN503.

Historic Data Sources

The bulk of the document research was conducted in the local archives of the following offices: the office of the County Clerk and Recorder, Garfield County, Glenwood Spring, Colorado, and Rio Blanco County, Meeker, Colorado; the office of the County Assessor, Rio Blanco County, Meeker, Colorado; and the office of the County Clerk and Recorder, Uintah County, Vernal Utah. Information from ditch record books, patent records, various deeds, trust and mortgage records, and mining records were used to establish original ownership and patterns of development in the areas where the oil shale tracts are located. The Vernal Abstract Company in Vernal, Utah graciously allowed us access to their mining record index, which saved a considerable amount of time.

Federal documents were limited to U.S.G.S. reports by F. V. Hayden and Dean L. Winchester, the census records from 1880 - 1930, and George E. Fay's Land Cessions in Utah and Colorado by the Ute Indians, 1861 - 1899, a compilation of Federal documents and treaties.

One public historical collection, the Western History Collection of the Denver Public Library, was the best source of primary and secondary

sources. The library of the Colorado State Historical Society, especially the C.W.A. Rio Blanco Interviews (Anonymous, Date Uncertain), and the oil shale collection in the Meeker Public Library, Meeker, Colorado, also contributed to the research.

Literary materials included articles in the Utah Historical Quarterly and Colorado Magazine, explorers journals from the period, and numerous books on western history. This is What I Remember, compiled by Susan and John Bury, and Builders of Uintah by the Daughters of the Utah Pioneers, proved to be extremely useful sources on the local history of the White River and Uintah Basin.

Newspapers, unpublished inventory reports on cultural resources, dissertations, and theses also provided information on the history of the region.

During the fieldwork phase, the field crews recorded and photographed the historic sites located on the tracts. The research historian spent three days in the field locating sites of possible significance adjacent to the nine oil shale tracts.

ARCHAEOLOGICAL SITES

Definition

For the purpose of this survey, we defined an archaeological site as a locality at which two or more artifacts (flakes, projectile points, scrapers, etc.) occurred within about 10m. of each other. Lone artifacts were recorded as isolated finds. A few exceptions to the definition were made, primarily where 2 or 3 tiny retouch flakes were found in an ant mound and no additional artifacts were nearby. These were not recorded as sites.

Site Type Descriptions

Six types of sites were found during the surveys. They are:

- 1) Open Lithic. The only cultural material present is flakes and/or chipped stone tools.
- 2) Open Prehistoric Camp. The cultural material includes ground stone, burned bone, hearths, or pottery. Chipped stone may, of course, also be present.
- 3) Open Historic Camp. The cultural material includes bottles, tin cans, hearths, etc.
- 4) Open Architectural. Some type of structure is present at the site; such as wickiups, teepee rings, barns, corrals, houses, etc. Other artifacts may also be present.
- 5) Sheltered Camp. Cultural material located in a rock shelter.
- 6) Petrograph. Painted or pecked designs on rocks (rock art) are present.

Site Descriptions

A total of 86 archaeological sites were located on the 9 tracts dur-

ing our survey in the fall of 1976. Nineteen additional sites had been reported from the tracts by previous surveys. Thus, 105 sites are currently known to exist within the boundaries of the tracts. It should be noted that only tract 3 has been completely surveyed. Many more sites undoubtedly remain to be discovered on the other tracts.

Additional sites exist which are not within the tract boundaries, but which are located near enough to the tracts to possibly be affected by development. Five of these are described in the summary which follows; 5RB398, 5RB442, 5RB447, 5RB452, and 42UN503.

Tract 1

Generalized locations of the sites described below are shown in Figure 8. Sites are not numbered on the figure in order to protect them from vandalism. Twenty-six sites have been located to date on tract 1. All but one (5RB438) are prehistoric. The sites are described below in numerical order.

Site Number: 5RB73

Site Type: open lithic

Aspect: SE

Elevation: 6420 ft. (1957m.)

Vegetative Type: pinon-juniper, sagebrush shrubland

Nearest Water: perennial stream - 800 m.

Site Description: a scatter of flakes washing down a slope; no hearths were present.

Artifacts: 1 biface fragment, 5 waste flakes, and 3 pieces of burnt bone.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB73 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB74

Site Type: open lithic

Aspect: NW

Elevation: 6320 ft. (1926 m.)

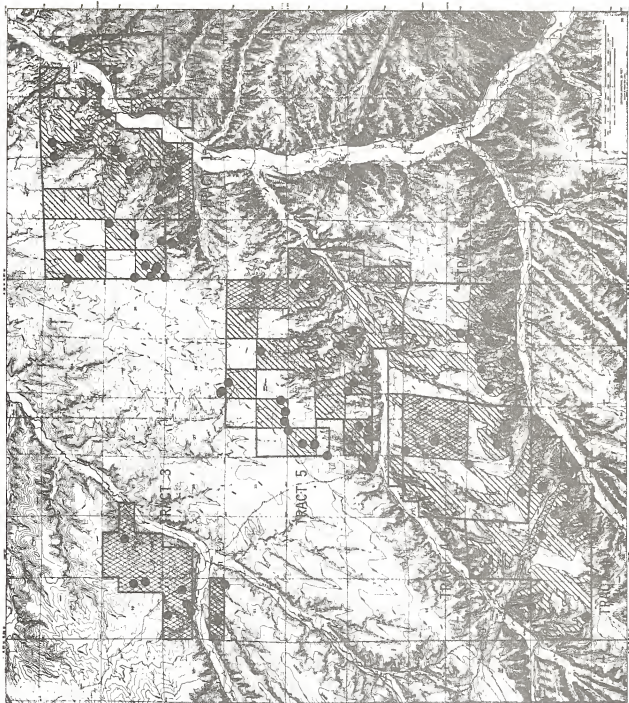


Figure 8. Map of in situ oil shale lease tracts 1, 3, 4, 5, and 6 showing the areas surveyed in 1976 and earlier. Locations of archaeological sites are indicated by dots.

KEY

Site Location ●

Area Surveyed, 1976



Area Surveyed, Prior to 1976



Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 150 m.

Site Description: a lithic scatter on a bench overlooking a perennial stream; no hearths were present.

Artifacts Collected: 7 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB74 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB75

Site Type: open lithic

Aspect: W

Elevation: 6360 ft. (1938 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 850 m.

Site Description: concentration of flakes and a projectile point on the high point of a ridge; no hearths were present.

Artifacts Collected: 1 type 3b projectile point (Fig. 62, specimen C),
3 waste flakes.

Features: None Cultural Affiliation: post-horticultural

Evaluation: 5RB75 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB271

Site Type: petrograph and sheltered camp

Aspect: SE

Elevation: 6040 ft. (1841 m.)

Vegetative Type: sagebrush bottomland and cultivated field

Nearest Water: perennial stream - 50 m.

Site Description: a rock shelter area which has been badly disturbed by road and pipeline construction activities. A small pictograph panel is located on a rock face a few meters southwest of the rock shelter. Possible evidence of aboriginal field patterns was observed on aerial photos of the area, but has not been confirmed.

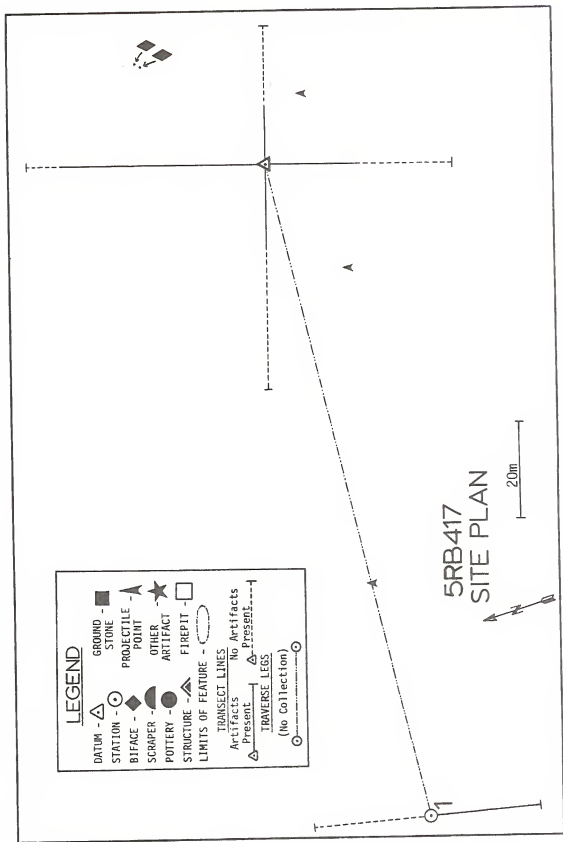


Figure 9. Site plan for 5RB417, located on Oil Shale Lease Tract 1 and recommended for nomination to the National Register of Historic Places.

Artifacts Collected: waste flakes located during test excavation of the rock shelter

Features: 1 pictograph panel Cultural Affiliation: possibly Fremont

Evaluation: 5RB271 has no potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB417

Site Type: open lithic

Aspect: N

Elevation: 6620 ft. (2018 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: a thin scatter of flakes and artifacts on the west side of a ridge crest in a sagebrush and pinon-juniper flat. A second concentration was located about 180 m. west down a slope (see Figs. 9 and 10).

Artifacts Collected: 1 type 4f projectile point (Fig. 64, specimen F), 1 unclassifiable projectile point fragment, 1 biface fragment, and 9 waste flakes.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB417 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB419

Site Type: open lithic

Aspect: S

Elevation: 6650 ft. (2027 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 350 m.

Site Description: a very thin scatter of flakes on a ridgetop which has been anchor-chained to remove pinon and juniper trees.

Artifacts Collected: 2 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: the site has been destroyed by anchor-chaining and has no potential for yielding information important to prehistory, no further action is required.



Figure 10. View of site 5RB417, a site on tract 1 recommended for nomination to the National Register of Historic Places. The staff in the photo is at station 1.



Figure 11. Photo of the north end of site 5RB429, located on tract 1 and recommended for nomination to the National Register of Historic Places. The site is located in the trees in the left half of the photo. Datum is out of the photo to the left.

Site Number: 5RB423

Site Type: open lithic

Aspect: N

Elevation: 6560 ft. (1999 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 250 m.

Site Description: a thin scatter of flakes on a ridge covered with pinon-juniper adjacent to a sage flat. One anthill on the site had several retouch flakes on it.

Artifacts Collected: 1 biface fragment and 1 waste flake

Features: none

Cultural Affiliation: undetermined

Evaluation: this site has no potential for producing information important to prehistory and has no scientific value. No further action is required.

Site Number: 5RB429

Site Type: open prehistoric camp

Aspect: SE

Elevation: 6500 ft. (1981 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: a large site located on the boundary between a sagebrush flat and pinon-juniper grove. Isolated artifacts were scattered over a wide area. Potsherds, burned bone, and charcoal were prevalent in one area, which appeared to be the center of activity at the site (see Figs. 11 and 12).

Artifacts Collected: 1 type 5b projectile point (Fig. 65, specimen T), 3 unclassifiable projectile point fragments, 50 potsherds, 1 complete biface (Fig. 68, specimen B), 12 biface fragments, 1 core, 4 scrapers, 20 bone fragments, and 34 waste flakes.

Features: 2 burned bone-charcoal concentrations were identified which are probably hearth areas. There appears to be considerable depth of the deposits at one of the possible hearth areas. Two concentrations of pottery were found.

Cultural Affiliation: probably Fremont

Evaluation: 5RB429 has considerable potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

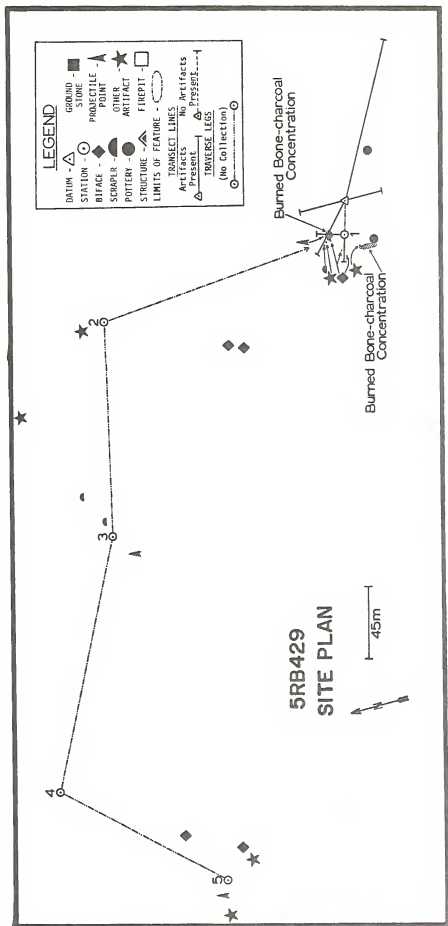


Figure 12. Site plan for 5RB429, located on Oil Shale Lease Tract 1 and recommended for nomination to the National Register of Historic Places.

Site Number: 5RB430

Site Type: open prehistoric camp

Aspect: SE

Elevation: 6400 ft. (1951 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: site consists of 2 projectile points, biface fragments, metate fragment, core, scraper, and waste flakes. This site was an open camp, but no hearths were present.

Artifacts

Collected: 2 type 5e projectile points (Fig. 66, specimens C and D), 2 biface fragments, 1 metate fragment, 1 core, 1 scraper, and 4 waste flakes.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB430 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB431

Site Type: open lithic

Aspect: NE

Elevation: 6640 ft. (2024 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 450 m.

Site Description: a thin scatter of flakes on an open hillside; there were retouch flakes in 3 anthills. No hearths were present.

Artifacts Collected: 1 biface fragment, 3 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB431 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB433

Site Type: open prehistoric camp

Aspect: E

Elevation: 6390 ft. (1948 m.)

Vegetative Community: pinon-juniper woodland

Nearest Water: ephemeral stream - 370 m.

Site Description: a very thin scatter of debitage on a small saddle and extending to the base of a high point on the ridge. No hearths were present.

Site 5RB433 (continued)

Artifacts Collected: 1 type 4f projectile point (Fig. 64, specimen E),
1 biface fragment, 1 mano (Fig. 74, specimen A),
and 1 utilized flake.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB433 has no potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB434

Site Type: open lithic

Aspect: S Elevation: 6420 ft. (1957 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 1300 m.

Site Description: a few flakes and projectile point fragment scattered along a ridgetop. No hearths were present.

Artifacts Collected: 1 type 4f projectile point (Fig. 64, specimen D),
and 3 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB434 has no potential for yielding information important to prehistory. No further action is required.

Site Number: 5RB435

Site Type: open prehistoric camp

Aspect: SW Elevation: 6660 ft. (2030 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 250 m.

Site Description: a scatter of flakes and tools, including a concentration of potsherds. Most of the site has been anchor-chained to remove pinon and juniper and is badly disturbed. No hearths were present.

Artifacts Collected: 1 type 3c projectile point (Fig. 62, specimen D),
7 sherds of Tusayan Corrugated pottery (Fig. 85,
specimens E and F), 2 biface fragments, 1 polishing
stone (Fig. 78, specimen C), and 2 waste flakes.

Features: potsherd concentration Cultural Affiliation: possibly Fremont

Evaluation: 5RB435 has been extensively disturbed by anchor-chaining and

Site 5RB435 (continued)

is not suitable for inclusion in the National Register. However, valuable scientific information is quite likely contained in the undisturbed area and the site should be given further consideration if threatened by development.

Site Number: 5RB436

Site Type: open lithic

Aspect: NW

Elevation: 6685 ft. (2038 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 350 m.

Site Description: a tightly bunched scatter of flakes and a scraper; 1 re-touch flake was in an anthill. No hearths were present.

Artifacts Collected: 1 scraper, 6 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB436 has no potential for yielding information important to prehistory, or other scientific values. No further action is required.

Site Number: 5RB437

Site Type: open lithic

Aspect: SE

Elevation: 6710 ft. (2045 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: a tightly bunched scatter of flakes and core fragments in an area of pinon-juniper which had been anchor-chained. No hearths were present.

Artifacts Collected: 2 cores, 5 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB437 lacks potential for yielding information important to prehistory. The site has been destroyed by anchor-chaining. No further action is required.

Site Number: 5RB438

Site Type: open architectural - historic

Aspect: s

Elevation: 6090 ft. (1856 m.)

Site 5RB438 (continued)

Vegetative Type: sagebrush bottomland

Nearest Water: perennial stream - 150 m.

Site Description: A sandstone cabin, partially dug out of a southeast facing slope. Refer to discussion of structures for a more complete description and see Fig. 88.

Artifacts Collected: none (1 pitchfork observed)

Cultural Affiliation: historic, post-1880

Evaluation: 5RB438 has no historical significance or other values. No further action is required.

Site Number: 5RB439

Site Type: open prehistoric camp

Aspect: S

Elevation: 6680 ft. (2036 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site consisted of a cluster of quartzite flakes and core fragments in a pinon-juniper grove. Also present were 2 mano fragments and several retouch flakes in an anthill. No hearths were present.

Artifacts Collected: 2 mano fragments, 7 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB439 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB440

Site Type: open lithic

Aspect: E

Elevation: 6685 ft. (2038 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 300 m.

Site Description: the site consists of a wide scatter of flakes, mostly brown chalcedony. The site is nearly level and half of it has been anchor-chained to remove pinon-juniper. No hearths were present.

Artifacts Collected: 1 type 4a projectile point (Fig. 63, specimen F), 1 scraper, and 8 waste flakes.

Site 5RB440 (continued)

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB440 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB441

Site Type: open lithic

Aspect: SE Elevation: 6560 ft. (1999 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 100 m.

Site Description: a concentration of tools and flakes in an area 10 m. by 2 m. plus 2 flakes about 30 m. away. This site has been badly disturbed by anchor-chaining. No hearths were present.

Artifacts Collected: 1 type 5b projectile point (Fig. 65, specimen O),
1 complete biface (Fig. 68, specimen C), 1 biface fragment, 1 utilized flake.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB441 has been damaged by chaining but may have deep enough deposits to provide useful scientific information. The site is not recommended for nomination to the National Register, but should be given further consideration if endangered by development.

Site Number: 5RB442

Site Type: open lithic

Note: 5RB442 is not actually within the boundaries of tract 1, but is located near enough that it might be affected by development.

Aspect: N Elevation: 6600 ft. (2012 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 400 m.

Site Description: a thin scatter of artifacts on a pinon-juniper covered ridgetop. Observed were 2 flakes, 1 scraper, 1 chalcidony core, and a projectile point tip. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment, 1 core,
1 scraper (Fig. 70, specimen C).

Site 5RB442 (continued)

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB442 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB443

Site Type: open lithic

Aspect: N Elevation: 6400 ft. (1951 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 300 m.

Site Description: a thin scatter of lithic debitage over a ridgetop. Most of the flakes observed were retouch flakes in anthills. Eleven glass trade beads were found on the site. No hearths were present.

Artifacts Collected: 11 glass "seed" beads (Fig. 80, specimens B to L),
2 scrapers (one pictured in Fig. 70, specimen B).

Features: none Cultural Affiliation: probably Ute

Evaluation: 5RB443 has no potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB444

Site Type: open lithic

Aspect: SE Elevation: 6460 ft. (1969 m.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 300 m.

Site Description: the site is in an extensive downwash area and most of the cultural material was found in small washes. It seemed to be washing down from the top of a ridge, but nothing was found when it was searched. No hearths were present.

Artifacts Collected: 1 core, 2 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB444 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB445

Site Type: open lithic

Aspect: SE

Elevation: 6500 ft. (1981 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site is at least a chipping station and possibly a campsite. Three tools were found along with several flakes. Nearby were 2 perpendicular lines of down trees, apparently arranged as some type of protection or fence. No hearths were present.

Artifacts Collected: 1 scraper (Fig. 71, specimen A), 1 complete biface (Fig. 68, specimen D), 1 biface fragment, and 1 waste flake.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB445 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB446

Site Type: open lithic

Aspect: SE

Elevation: 6500 ft. (1981 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 350 m.

Site Description: the site consisted of a scraper and a thin scatter of flakes on a narrow ridgetop covered with pinon-juniper. No hearths were present.

Artifacts Collected: 1 scraper, 2 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB446 lacks potential for yielding information important to prehistory or other scientific values. No further action is necessary.

Site Number: 5RB447

Site Type: open lithic

Note: 5RB447 is not actually located within the boundaries of tract 1, but is close enough that it might be affected by development.

Aspect: S

Elevation: 6540 ft. (1995 m.)

Vegetative Community: pinon-juniper woodland, sagebrush shrubland

Site 5RB447 (continued)

Nearest Water: ephemeral stream - 200 m.

Site Description: the site consists of some flakes, a projectile point, and a biface fragment on a high ridgetop. No hearths were present.

Artifacts Collected: 1 type 4d projectile point (Fig. 63, specimen L),
1 biface fragment.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB447 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB449

Site Type: open lithic

Aspect: SE Elevation: 6500 ft. (1981 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 320 m.

Site Description: the site consisted of a biface fragment and a thin scatter of flakes on a pinon-juniper covered ridgetop. No hearths were present.

Artifacts Collected: 1 biface fragment, 3 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB449 lacks potential for yielding information important to prehistory or other scientific values. No further action is necessary.

Site Number: 5RB450

Site Type: open lithic

Aspect: SE Elevation: 6410 ft. (1954 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site consisted of 2 potlidded flakes and a projectile point fragment lying within 4 m. of each other on a slope a few meters below a ridgetop. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment

Site 5RB450 (continued)

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB450 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB451

Site Type: open prehistoric camp

Aspect: S Elevation: 6440 ft. (1963 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 350 m.

Site Description: this is an extensive site located on a pinon-juniper covered ridgetop. Observed were several firepits, some with obvious buried material, manos, metates, potsherds, flakes and tools (see Figs. 13 and 14).

Artifacts: 1 biface fragment, 1 drill (Fig. 69, specimen B), 2 scrapers (Fig. 71, specimens B and C), 4 manos (2 pictured: Fig. 72, specimen A and Fig. 75, specimen B), 2 metates (Fig. 76, specimen A and Fig. 77, specimen A), 1 Fremont potsherd (Fig. 85, specimen D), 1 McElmo Black-on-White potsherd (Fig. 86), and 1 unique artifact (Fig. 68, specimen E).

Features: at least 5 hearth areas were evident. The survey was cut short by a snowstorm before a complete inventory could be made.

Cultural Affiliation: probably Fremont

Evaluation: this site needs further investigation and mapping. Test excavation would be desirable. The site clearly has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB452

Site Type: open lithic

Note: 5RB452 is not within the boundaries of tract 1 but is located close enough to it to possibly be affected by development.

Aspect: S Elevation: 6560 ft. (1999 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 200 m.

Site Description: the site consists of at least 3 concentrations of flakes on a pinon-juniper covered ridgetop. The quantity of

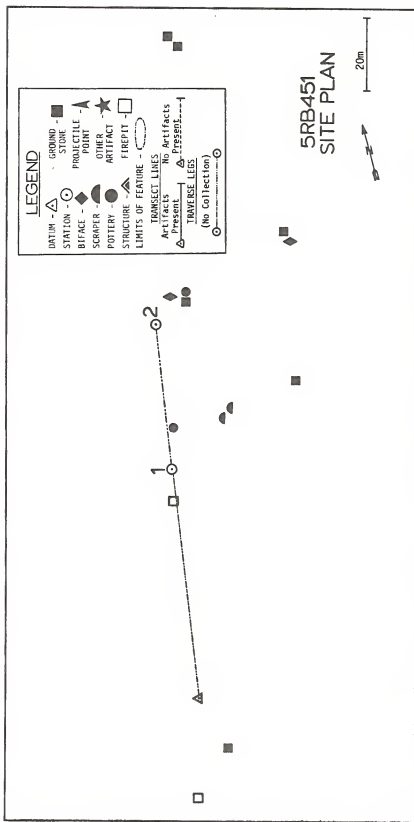


Figure 13. Site plan for 5RB451, located on Oil Shale Lease Tract 1 and recommended for nomination to the National Register of Historic Places.



Figure 14. View of site 5RB451, located on tract 1 and recommended for nomination to the National Register of Historic Places. This photo was taken looking north along the ridge on which the site is located. The staff (arrow) is at the datum point.

Site 5RB452 (continued)

flakes at this site is unusually large and the flakes are tightly grouped as if they might have been discarded by a pothunter.

Artifacts Collected: no collection made

Features: none

Cultural Affiliation: undetermined

Evaluation: this site needs to be studied further and a collection made. Time was not taken to study it thoroughly because it was not on the tract. The site lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Tract 2

Generalized locations of the sites on tract 2 are shown in Figure

15. Seven sites have been located to date on tract 2, all prehistoric.

The sites are described below in numerical order.

Site Number: 5RB376

Site Type: open lithic

Aspect: W

Elevation: 7500 ft. (2286 m.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: a very thin scatter of flakes and artifacts on a broad ridgetop. No hearths were present. The site has little depth.

Artifacts Collected: 1 type 4b projectile point (Fig. 63, specimen J), 1 type 5b projectile point (Fig. 65, specimen N), and 1 biface fragment.

Features: none

Cultural Affiliation: post-horticultural

Evaluation: 5RB376 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB379

Site Type: open lithic

Aspect: SE

Elevation: 7170 ft. (2185 m.)

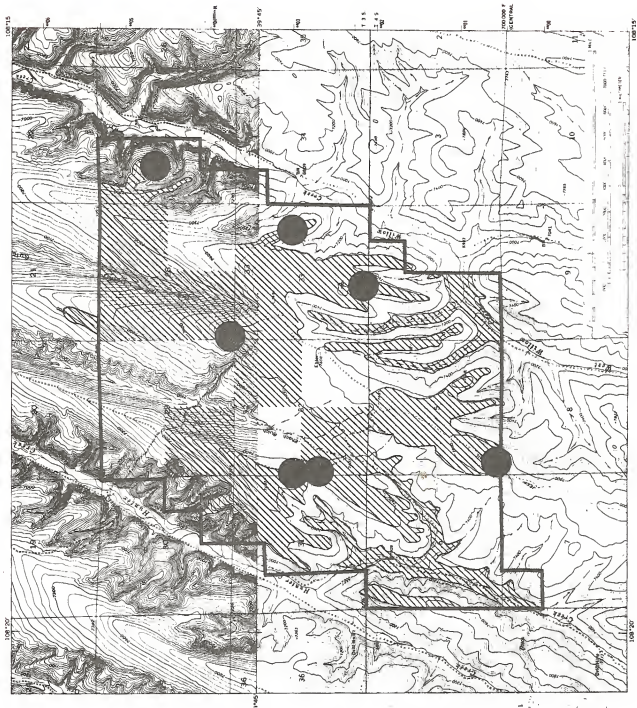


Figure 15. Map of in situ oil shale lease tract 2 showing the areas surveyed in 1976 and the location of the archaeological sites.

KEY



Site Location



Area Surveyed, 1976



Site 5RB379 (continued)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 400 m.

Site Description: a fairly tightly contained scatter of flakes and artifacts on a narrow, pinon-juniper covered ridgetop. No hearths were present.

Artifacts Collected: 1 biface fragment, 1 utilized flake, 37 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB379 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB380

Site Type: open lithic

Aspect: E

Elevation: 7445 ft. (2269 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site consisted of a biface tip and a retouch flake in an anthill and one larger flake nearby. It has been disturbed by a jeep road. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment and 1 retouch flake.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB380 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB381

Site Type: open prehistoric camp

Aspect: W

Elevation: 7485 ft. (2281 m.)

Vegetative Type: mixed mountain shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site consisted of a mano fragment and some retouch flakes in a nearby anthill. No hearths were present.

Artifacts Collected: 1 mano fragment and 1 retouch flake

Site 5RB381 (continued)

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB381 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB383

Site Type: open lithic

Aspect: 360° exposure on ridgetop Elevation: 7880 ft. (2402 m.)

Vegetative Type: mixed mountain shrubland

Nearest Water: ephemeral stream - 350 m.

Site Description: this is a large site scattered over a broad ridgetop and consists of several concentrations of flakes and tools. The site is bisected by a jeep road. No hearths were present.

Artifacts Collected: 1 type 4e projectile point (Fig. 64, specimen A), 1 utilized flake, and 4 waste flakes

Features: none Cultural Affiliation: possibly Archaic

Evaluation: 5RB383 does not merit a recommendation for nomination to the National Register of Historic Places, but may have scientific values and should receive further consideration if endangered by development.

Site Number: 5RB385

Site Type: open prehistoric camp

Aspect: S Elevation: 7520 ft. (2992 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 200 m.

Site Description: a scatter of flakes and tools at the junction of 2 long, narrow ridges. Parts of the site were eroding. No hearths were present (see Figs. 16 and 17).

Artifacts Collected: 1 complete biface (Fig. 67, specimen E), 3 biface fragments, 1 core, 1 scraper, 3 utilized flakes, 6 waste flakes, and 5 bone fragments.

Features: none Cultural Affiliation: probably Paleo-Indian

Evaluation: 5RB385 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

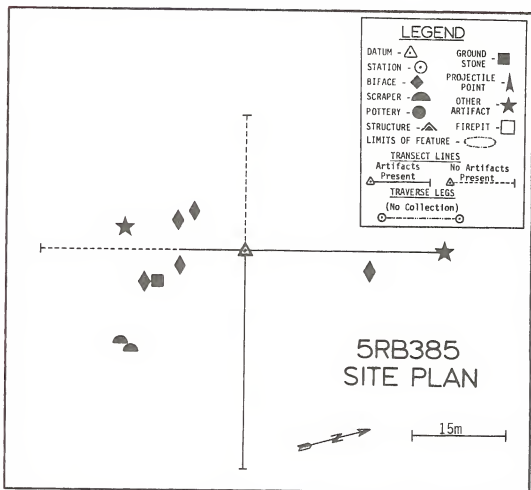


Figure 16. Site plan for 5RB385, located on Oil Shale Lease Tract 2 and recommended for nomination to the National Register of Historic Places.



Figure 17. View of the datum area at 5RB385, a site on tract 2 recommended for nomination to the National Register of Historic Places. The staff is at the datum point and the Willow Creek valley is in the background.

Site Number: 5RB387

Site Type: open lithic

Aspect: NW

Elevation: 7430 ft. (2265 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 200 m.

Site Description: the site consisted of a thin scatter of small flakes, mostly quartzite, on top of a narrow ridge. No tools or hearths were present.

Artifacts Collected: none

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB387 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Tract 3

Generalized locations of the sites on tract 3 are shown in Figure 8.

Nine sites have been located to date on tract 3, all prehistoric. The sites are described below in numerical order.

Site Number: 5RB18

Site Type: open lithic

Aspect: SE

Elevation: 6560 ft. (1999 m.)

Vegetative Community: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 1600 m.

Site Description: a thin scatter of flakes and tools over a large area. No hearths were present.

Artifacts Collected: 1 type 1 projectile point (Fig. 61, specimen A), 1 type 5a projectile point (Fig. 65, specimen C), 3 biface fragments, 3 scrapers (1 pictured in Fig. 70, specimen F), and 1 bone fragment.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB18 lacks potential for yielding information important to prehistory, but may have other scientific values and should receive further consideration if endangered by development.

Site Number: 5RB43

Site Type: Open Prehistoric Camp

Aspect: S

Elevation: 6490 ft. (1978 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: Ephemeral Stream - 106 m.

Site Description: a scatter of flakes and tools including projectile points, bifaces, ground stone, hearths, and burnt bone. The site is located on a low ridge overlooking a drainage.

Artifacts Collected: 2 type 4e projectile points (Fig. 64, specimens B and C), 2 type 5a projectile points (Fig. 65, specimens E and J), 3 unclassifiable projectile point fragments, 1 type 5b projectile point (Fig. 65, specimen Q), 5 mano fragments, 1 metate fragment, 2 polishing stones (Fig. 78, specimen D and Fig. 79), 5 scrapers, 7 biface fragments, 3 bone fragments, 1 utilized flake, and 377 waste flakes.

Features: hearths

Cultural Affiliation: Archaic and Post-Horticultural

Evaluation: 5RB43 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB95

Site Type: open lithic

Aspect: S

Elevation: 6490 ft. (1978 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 20 m.

Site Description: surface marked by thinly scattered lithic debitage. No hearths were present.

Artifacts Collected: 1 type 5a projectile point (Fig. 65, specimen B), 1 biface fragment, and 2 waste flakes.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB95 lacks potential for yielding information important to prehistory but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB125

Site Type: open prehistoric camp

Aspect: SW

Elevation: 6480 ft. (1975 m.)

Site 5RB125 (continued)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 850 m.

Site Description: a lithic scatter over a large area

Artifacts Collected: 1 type 5b projectile point (Fig. 65, specimen K),
6 waste flakes

Features: 1 hearth Cultural Affiliation: undetermined

Evaluation: 5RB125 lacks potential for yielding information important to prehistory but may have other scientific values and should receive further consideration if endangered by development.

Note: the following 5 sites were recorded in 1975 by University of Denver crews. The site descriptions are taken from their report (Olson et al. 1975).

Site Number: 5RB522 Site Type: open prehistoric camp

Univ. of Denver Site Number: Colo. H:3:13 (Olson et al. 1975:78)

Site Description: scatter of chipped and ground stone tools on a ridge-top.

Artifacts Collected: projectile points, scrapers, bifaces, utilized flakes, core, numerous waste flakes

Features: none Cultural Affiliation: Fremont

Evaluation: recommended for nomination to the National Register of Historic Places.

Site Number: 5RB525 Site Type: open prehistoric camp

Univ. of Denver Site Number: Colo. H:3:12 (Olson et al. 1975:80)

Site Description: a lithic and potsherd scatter on 84 Mesa

Artifacts Collected: projectile points, scrapers, bifaces, ground stone, utilized flakes, core, chopper, waste flakes, and 11 potsherds which were identified as being "Shoshonean-like".

Features: none Cultural Affiliation: none assigned

Evaluation: recommended for nomination to the National Register of Historic Places.

Site Number: 5RB528

Site Type: open prehistoric camp

Univ. of Denver Site Number: Colo. H:3:15 (Olson et al. 1975:84)

Site Description: a lithic and potsherd scatter on 84 Mesa

Artifacts Collected: projectile point, scrapers, drill, bifaces, utilized flakes, waste flakes, and 9 potsherds which are described as being "Turner Gray II".

Features: none

Cultural Affiliation: Fremont

Evaluation: recommended for nomination to the National Register of Historic Places.

Site Number: 5RB542

Site Type: open prehistoric camp

Univ. of Denver Site Number: Colo. H:3:10 (Olson et al. 1975:89)

Site Description: a chipped and ground stone scatter on 84 Mesa

Artifacts Collected: projectile point, bifaces, drill, utilized flakes, waste flakes, 2 mano fragments.

Features: none

Cultural Affiliation: undetermined

Evaluation: recommended for nomination to the National Register of Historic Places.

Site Number: 5RB545

Site Type: open prehistoric camp

Univ. of Denver Site Number: Colo. H:3:16 (Olson et al. 1975:113)

Site Description: a lithic scatter on 84 Mesa

Artifacts Collected: projectile points, waste flakes, mano fragment

Features: none

Cultural Affiliation: Archaic and historic Shoshonean

Evaluation: recommended for nomination to the National Register of Historic Places.

Tract 4

Generalized locations of the sites described below are shown on Figure 8. Fifteen sites have been located to date on tract 4. All but 1 (5RB399) are prehistoric. It should be noted that tract 4 overlaps

with tract 6 and that some of the sites are therefore located on both tracts. The sites are described below in numerical order.

Site Number: 5RB41

Site Type: open lithic

Aspect: NE

Elevation: 6640 ft. (2024 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 154 m.

Site Description: a scatter of flakes on a ridge crest. No hearths were present.

Artifacts Collected: 4 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB41 has no potential for yielding information important to prehistory or other scientific values. No further action is necessary.

Site Number: 5RB94

Site Type: open lithic

Aspect: S

Elevation: 6580 ft. (2006 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 320 m.

Site Description: a scatter of lithic debitage. No hearths were present.

Artifacts Collected: 1 scraper, 1 utilized flake, 2 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB94 has no potential for yielding information important to prehistory and requires no further action.

Site Number: 5RB144

Site Type: open architectural

Aspect: SE

Elevation: 6880 ft. (2097 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 320 m.

Site Description: this site consists of several log structures, firepits, lithic debris, and potsherds on a high ridgetop (see Fig. 18).

Artifacts: 1 type 5b projectile point (Fig. 65, specimen F), 1 scraper (Fig. 70, specimen A), 31 sherds of Turner Gray-Emery Variety pottery, 1 bone object (Fig. 81, specimen F).



Figure 18. View of the location of site 5RB144 (arrow). This site is on the end of a long ridge which overlooks Black Sulphur Gulch. It has been recommended for nomination to the National Register of Historic Places.



Figure 19. Site 5RB401 is shown in this photo. The staff at the left of the photo is at the datum point. A concentration of potsherds was found down the slope to the right of the tree in the foreground.

Site 5RB144 (continued)

Features: 2 structures resembling wickiups, 1 small corral-like structure, 1 rock and log wall, a log arrangement which appears to be a barrier of some kind, and at least 5 hearths.

Cultural Affiliation: Fremont and possibly Post-Horticultural

Evaluation: 5RB144 has potential for yielding information important to pre-history and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB399

Site Type: open architectural (historic)

Aspect: NE

Elevation: 6940 ft. (2115 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 120 m.

Site Description: the remains of a collapsed small cabin consisting of a hole dug in the slope of a low ridge. Logs which had comprised the walls were lying nearby. The remains of a rock chimney were at the east end of the structure. A barn or corral structure was located a few meters to the east of the cabin site. See structures section and Figure 87.

Artifacts Collected: rusted tin cans (see artifacts section) and nails

Artifacts Observed: cast iron stove present in the cabin floor area

Features: foundation of log cabin and corral or barn structure

Cultural Affiliation: historic, probably post-1910.

Evaluation: this site is one of the few historic cabins in the immediate area, but has little potential for yielding important historical information and requires no further action.

Site Number: 5RB401

Site Type: open prehistoric camp

Aspect: NW

Elevation: 6845 ft. (2086 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 700 m.

Site Description: the site is located on a narrow ridgetop with an unobstructed view to the west, southwest, and east. Present at the site were a biface fragment, flakes, and a potsherd concentration. No hearths were present. See Figures 19 and 20.

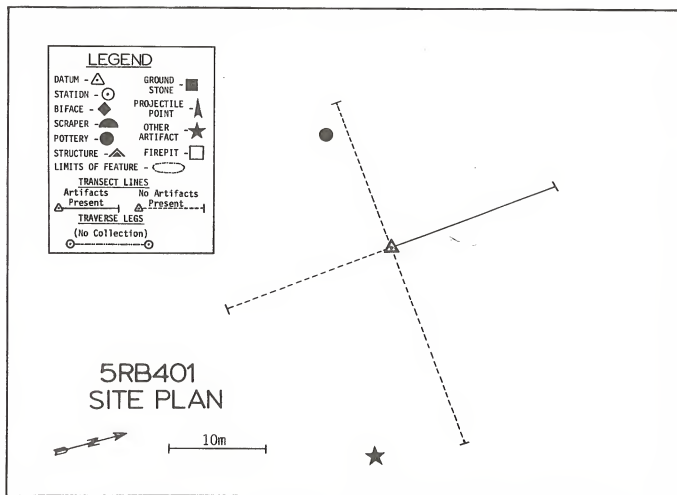


Figure 20. Site plan for 5RB401, located on Oil Shale Lease Tract 4 and recommended for nomination to the National Register of Historic Places.

Site 5RB401 (continued)

Artifacts Collected: 1 biface fragment, 2 waste flakes, and 45 sherds of Turner Gray-Emerly Variety pottery.

Features: none Cultural Affiliation: probably Fremont

Evaluation: 5RB401 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB403

Site Type: open lithic

Aspect: S Elevation: 7085 ft. (2196 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 220 m.

Site Description: a thin scatter of flakes in a nearly level pinon grove. No hearths were present.

Artifacts Collected: 1 utilized flake, 4 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB403 has no potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB405

Site Type: open lithic

Aspect: SW Elevation: 6990 ft. (2131 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 450 m.

Site Description: site consists of artifacts in 2 anthills which were about 50 m. apart. A projectile point tip and some retouch flakes were in one anthill and 8 retouch flakes were in the other. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment and 1 waste flake

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB405 has no potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB407

Site Type: open lithic

Aspect: SE

Elevation: 6950 ft. (2118 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: perennial stream - 1400 m.

Site Description: the site consisted of flakes in 3 anthills and a pot-lidded drill tip. No hearths were present.

Artifacts Collected: 1 drill fragment

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB407 lacks potential for yielding information important to prehistory but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB409

Site Type: open lithic

Aspect: S

Elevation: 6870 ft. (2094 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: perennial stream - 1300 m.

Site Description: a thin scatter of flakes and artifacts on a flat ridge-top near the tip of a ridge. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment, 1 biface fragment, 2 waste flakes.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB409 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB411

Site Type: open architectural

Aspect: SE

Elevation: 6830 ft. (2082 m.)

Vegetative Community: pinon-juniper woodland

Nearest Water: perennial stream - 350 m.

Site Description: the site consists of scattered flakes, 1 mano, a small log structure and a large circular rock structure on the tip of a narrow ridge. The southern tip of the site provides a commanding 360° view of the surrounding area. No hearths were present. See Figures 21,22, and 23.

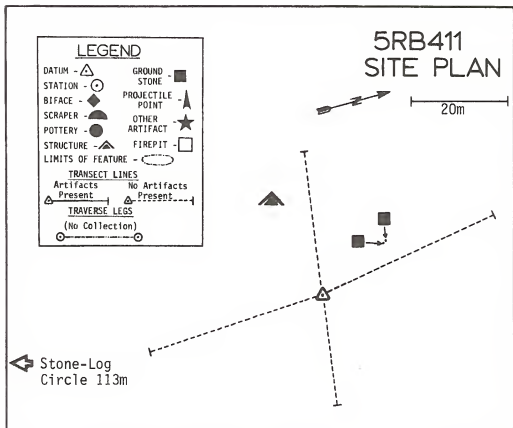


Figure 21. Site plan for 5RB411, located on Oil Shale Lease Tract 4 and recommended for nomination to the National Register of Historic Places.

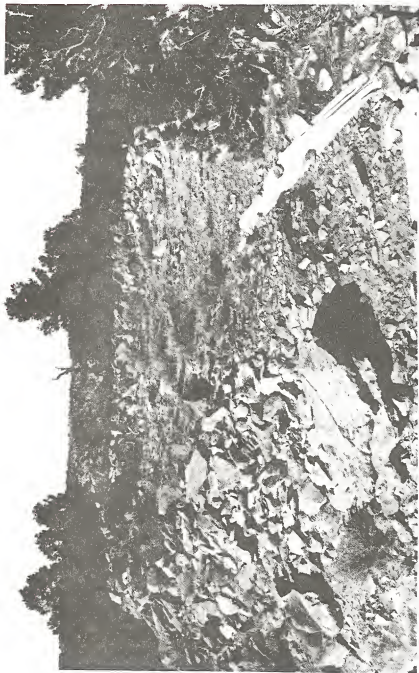


Figure 22. View of Feature 1 at site 5RB411. This stone and log structure is about 10 meters in diameter. It is located on the end of a high ridge overlooking a valley. Note at the bottom right an aerial photo marker has been placed, causing damage to the structure.



Figure 23. Feature 2 at site 5RB411. This miniature "teepee" structure is about 1 meter high. Its function is uncertain and it may not be aboriginal in origin.

Site 5RB411 (continued)

Artifacts Collected: 1 mano fragment

Features: Feature 1 was a large circular rock structure (Fig. 22). Feature 2 was a small log "tipi" structure (Fig. 23).

Cultural Affiliation: possibly of Ute origin

Evaluation: 5RB411 has potential for yielding information important to prehistory and is recommended for nomination the the National Register of Historic Places.

Site Number: 5RB413

Site Type: open prehistoric camp

Aspect: NE

Elevation: 6930 ft. (2112 m.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 900 m.

Site Description: a wide scatter of flakes and tools in a sagebrush flat, including a large concentration of flakes at the south-east end of the site. No hearths were present. See Figures 24 and 25.

Artifacts Collected: 2 biface fragments, 1 metate fragment, 1 scraper, 69 waste flakes, and 1 utilized flake.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB413 has potential for yielding information important to prehistory and is recommended for nomination the the National Register of Historic Places.

Site Number: 5RB415

Site Type: open lithic

Aspect: NW

Elevation: 6790 ft. (2070 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 250 m.

Site Description: a thin scatter of flakes and a large number of retouch flakes in 2 anthills. No hearths were present. See Figures 26 and 27.

Artifacts Collected: 1 unclassifiable projectile point fragment, 39 waste flakes.

Features: none

Cultural Affiliation: undetermined

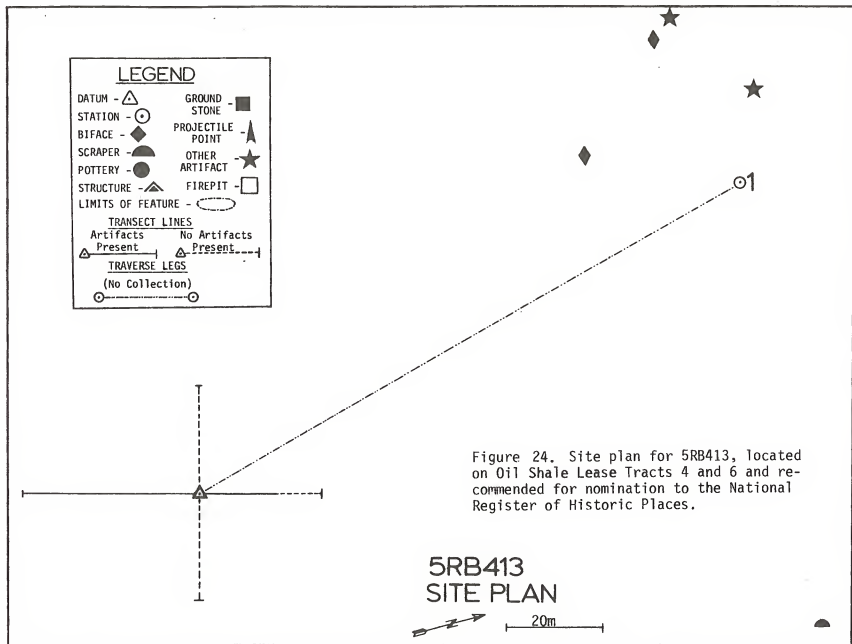


Figure 24. Site plan for 5RB413, located on Oil Shale Lease Tracts 4 and 6 and recommended for nomination to the National Register of Historic Places.



Figure 25. View of site 5RB413, located on tracts 4 and 6 and recommended for nomination to the National Register of Historic Places. This large site is located on this sagebrush-covered hillside.



Figure 26. Photo of the datum area at 5RB415, a site located on a flat, pinon-juniper covered ridgetop. The staff is at the datum point.

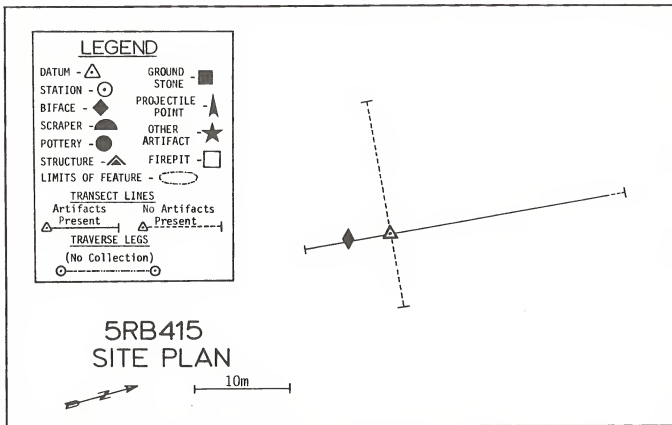


Figure 27. Site plan for 5RB415, located on Oil Shale Lease Tracts 4 and 6 and recommended for nomination to the National Register of Historic Places.

Site 5RB415 (continued)

Evaluation: 5RB415 is the best example of a class of sites which have anomalous northern exposures, no features, isolation from water sources, and large quantities of retouch debitage concentrated in anthills. This type of site apparently plays a different role in the regional prehistory than other types. 5RB415 is the best example and has considerable potential for yielding information important to prehistory. It is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB421

Site Type: open lithic

Aspect: S

Elevation: 6710 ft. (2045 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 200 m.

Site Description: material consisted of several retouch flakes in anthills (all of the same spotted pumpkin chalcedony), a few large flakes of different materials, 1 utilized flake and a scraper. Some burned rocks were present but they did not form a definable hearth.

Artifacts Collected: 1 scraper (Fig. 70, specimen E), 1 utilized flake

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB421 lacks potential for yielding information important to prehistory. No further action is required.

Site Number: 5RB422

Site Type: open lithic

Aspect: S

Elevation: 6820 ft. (2079 m.)

Vegetative Type: pinon-juniper woodland, mountain shrubland

Nearest Water: ephemeral stream - 325 m.

Site Description: a scatter of flakes, retouch flakes in anthills, and one large bifacially worked tool on the surface. The material seemed to be eroding out of a soil overburden as most of the flakes were appearing in small shallow wash areas. The large biface was found near a juniper tree which could possibly be part of a collapsed wickiup. No hearths were present.

Artifacts Collected: 1 biface (Fig. 67, specimen F), 1 utilized flake, and 19 waste flakes.

Site 5RB422 (continued)

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB422 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB424

Site Type: open lithic

Aspect: S Elevation: 6869 ft. (2094 m.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 500 m.

Site Description: a thin scatter of lithic debitage atop the highest point of a south-trending ridge overlooking a perennial stream. Almost all the material was small secondary re-touch and thinning flakes. No hearths were present.

Artifacts Collected: 26 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB424 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Tract 5

Generalized locations of the tract 5 sites are shown in Figure 8. Twenty-four sites have been located to date on tract 5. In addition, a description of 5RB398, which is located just off the tract, is included here. All the sites are prehistoric with 5RB390 also having a historic component. The sites are described below in numerical order.

Site Number: 5RB44

Site Type: open prehistoric camp

Aspect: S Elevation: 6640 ft. (2024 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 500 m.

Site Description: a scatter of flakes and tools.

Site 5RB44 (continued)

Artifacts Collected: 1 type 5a projectile point (Fig. 65, specimen A),
1 type 5b projectile point (Fig. 65, specimen V),
1 possible perforator, 2 scrapers, and 1 mano fragment.

Features: 2 hearths Cultural Affiliation: post-horticultural

Evaluation: 5RB44 lacks potential for yielding information important to prehistory but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB319

Site Type: open prehistoric camp

Aspect: SE

Elevation: 6545 ft. (1995 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 200 m.

Site Description: the site is large, located on a long ridgetop, and encompasses a tall rock outcrop at the eastern end of the site. See Figures 2, 28, and 29.

Artifacts Collected: 1 type 4a projectile point (Fig. 63, specimen C),
1 core, 176 waste flakes, 2 mano fragments, 1 metate fragment, 7 sherds of Shoshoni pottery, and a metal bead.

Features: 4 hearths, a teepee ring (Fig. 29)

Cultural Affiliation: Ute or Shoshoni

Evaluation: 5RB319 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB320

Site Type: open prehistoric camp

Aspect: S

Elevation: 6560 ft. (1999 m.)

Vegetative Type: pinon-juniper, sagebrush shrubland

Nearest Water: ephemeral stream - 200 m.

Site Description: a thin lithic scatter along a ridge, following the contour.

Artifacts Collected: 1 type 5f projectile point (Fig. 66, specimen F),
3 biface fragments, 1 utilized flake, 14 waste flakes,
and 1 metate fragment.

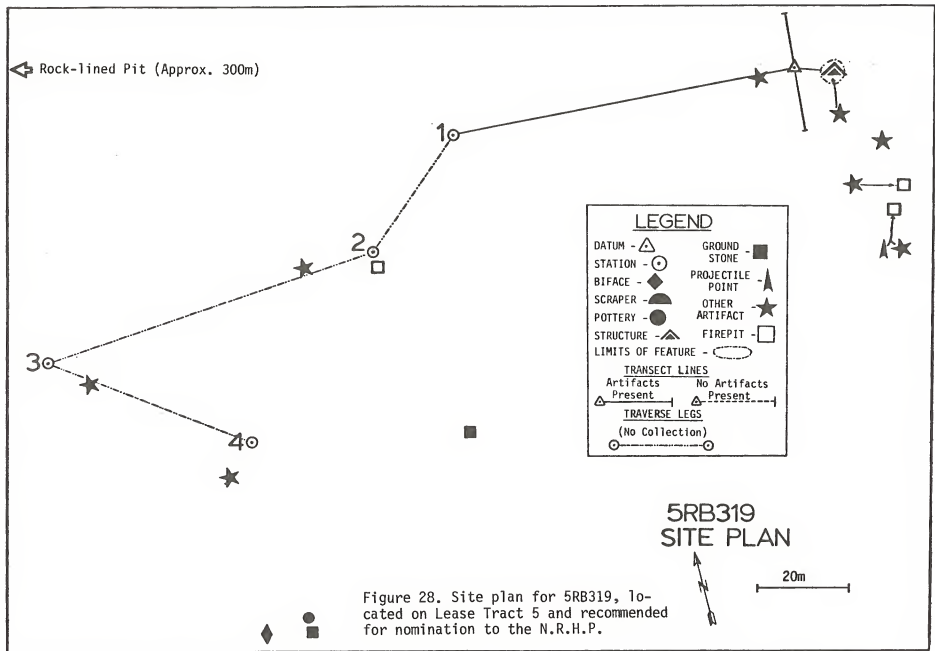




Figure 29. View of a "teepee ring" feature at 5RB319. The rocks in the photo are arranged in a generally circular pattern.

Site 5RB382 (continued)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 150 m.

Site Description: an open lithic scatter of flakes and tools, including retouch flakes in 4 or 5 anthills. The site may contain buried material. No hearths were present. See Figures 30 and 31.

Artifacts Collected: 2 type 4a projectile points (Fig. 63, specimens B and G), 1 biface fragment, 12 waste flakes, and 1 shell bead (Fig. 80, specimen A).

Features: none Cultural Affiliation: post-horticultural

Evaluation: 5RB382 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB384

Site Type: open lithic

Aspect: SW

Elevation: 6520 ft. (1987 ft.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 100 m.

Site Description: several flakes and a projectile point tip in and around an anthill. The site is on a rather steep slope and is subject to erosion. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB384 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB386

Site Type: open lithic

Aspect: SW

Elevation: 6628 ft. (2020 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 300 m.

Site Description: a fairly localized concentration of lithic material. Some burned bone was noted. Much of the ground surface was covered with pine needles. No hearths were present.

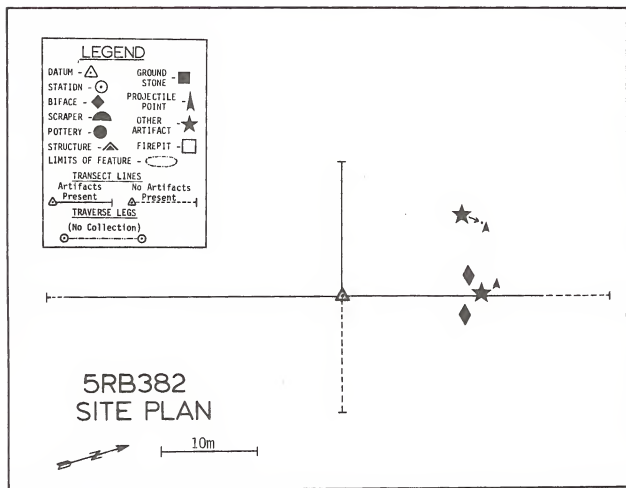


Figure 30. Site plan for 5RB382, located on Oil Shale Lease Tract 5 and recommended for nomination to the National Register of Historic Places.



Figure 31. View of site 5RB382, located on tract 5.

Site 5RB386 (continued)

Artifacts Collected: 1 type 4a projectile point (Fig. 63, specimen I), 1 core and 10 waste flakes.

Features: none Cultural Affiliation: post-horticultural

Evaluation: 5RB386 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB388

Site Type: open lithic

Aspect: S

Elevation: 6600 ft. (2012 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 350 m.

Site Description: a scatter of flakes over a saddle. The location is ideal, affording a good view to the south, east, and west with good southern exposure. The flakes were mostly large. No hearths were present.

Artifacts Collected: 1 biface fragment and 6 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB388 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB389

Site Type: open lithic

Aspect: SE

Elevation: 6560 ft. (1999 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 400 m.

Site Description: site consisted of 3 flakes and a scraper scattered over a flat ridgetop. The view was poor except to the east. No hearths were present.

Artifacts Collected: 1 scraper

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB389 lacks potential for yielding information important to prehistory or other scientific values. No further action is necessary.

Site Number: 5RB390

Site Type: open lithic and open historic camp

Aspect: SW

Elevation: 6725 ft. (2050 m.)

Vegetative Type; pinon-juniper woodland, mountain shrubland

Nearest Water; ephemeral stream - 600 m.

Site Description: this is a multi-component site. The most recent component is historic, probably a sheepherder's camp and/or dump area. The second component is an open chipping area comprised of several flakes, a core, and some burned bone. A second lithic concentration was found NW of the datum point and consisted of pressure and small percussion and thinning flakes. No hearths were present.

Artifacts Collected: 1 core, 7 waste flakes, and 1 historical button (Fig. 81, specimen E)

Features: none

Cultural Affiliation: prehistoric - undetermined
historic - probably a sheepherder's camp

Evaluation: 5RB390 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB391

Site Type: open architectural

Aspect: SE

Elevation: 6480 ft. (1975 m.)

Vegetative Type: pinon-juniper woodland Nearest Water: ephemeral stream - 200m.

Site Description: the site consists of a possible wickiup structure, mostly knocked down, with a concentration of juniper bark in the bottom. A mano, metate fragment, chipped stone, burned bone, and fire cracked rock were all within 5 m. of the possible structure. See Figures 32, 33, and 34.

Artifacts: 1 biface fragment, 1 mano, 1 metate fragment, 2 scrapers, 49 bone fragments, and 1 waste flake.

Features: feature 1 was the possible wickiup, feature 2 was a firepit area

Cultural Affiliation: probably Ute

Evaluation: this site has about 20 cm minimum of cultural deposit as well as a structure, firepit, and artifacts. 5RB391 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

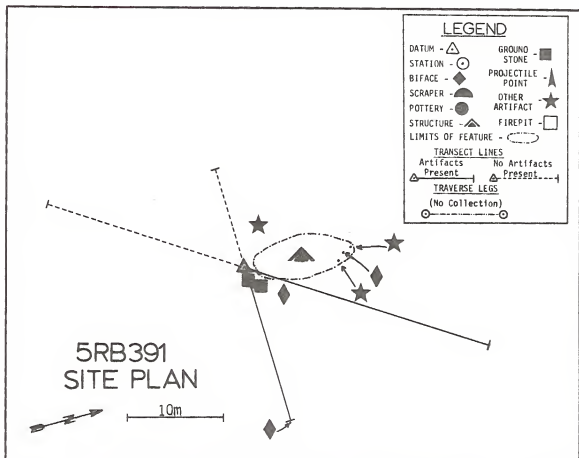


Figure 32. Site plan for 5RB391, located on Oil Shale Lease Tract 5 and recommended for nomination to the National Register of Historic Places.



Figure 33. Photo of site 5RB391. The staff at the left center of the photo is at datum and a probable collapsed wickiup is to the right of the tree at the top left.



Figure 34. Closer view of the probable collapsed wickiup at 5RB391. Shredded juniper bark was found among the fallen logs and firepits were present just out of this photo to the left.

Site Number: 5RB392

Site Type: open lithic

Aspect: S

Elevation: 6745 ft. (2056 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site consisted of 5 flakes, all of which were found in a wash. The material appears to have washed down from the road fill and therefore may have come from some other position along the road. No hearths were present.

Artifacts Collected: none

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB392 lacks potential for yielding information important to prehistory or other scientific values and requires no further action.

Site Number: 5RB393

Site Type: open lithic

Aspect: SE

Elevation: 6540 ft. (1993 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 190 m.

Site Description: the site consisted of retouch flakes in several ant-hills plus a biface fragment. No hearths were present.

Artifacts Collected: 1 biface fragment

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB393 lacks potential for yielding information important to prehistory, but may have other scientific values and should receive further consideration if endangered by development.

Site Number: 5RB394

Site Type: open lithic

Aspect: S

Elevation: 6740 ft. (2054 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water; ephemeral stream - 450 m.

Site Description: 5 flakes were found in and along an old jeep trail. No hearths were present.

Artifacts Collected: none

Site 5RB397 (continued)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 350 m.

Site Description: a thin scatter of flakes concentrated in a rather small area. No hearths were present.

Artifacts Collected: 11 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB397 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB398

Site Type: open prehistoric camp

Note: 5RB398 is not actually located within the boundaries of tract 5, but is near enough that it might be affected by development.

Aspect: S Elevation: 6725 ft. (2050 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 150 m.

Site Description: a debitage scatter over an entire knoll and the surrounding slopes. No hearths were present. (Figs. 35 and 36)

Artifacts Collected: 7 Shoshoni potsherds (see ceramics section), 1 biface fragment, 1 core, and 18 waste flakes.

Features: none Cultural Affiliation: Ute or Shoshoni

Evaluation: 5RB398 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB400

Site Type: open lithic

Aspect: S Elevation: 6725 ft. (2050 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 400 m.

Site Description: a surface scatter of lithic debris and tools. No hearths were present. See Figs. 37 and 38.

Artifacts Collected: 1 type 4f projectile point (Fig. 64, specimen G), 5 biface fragments, 1 perforator (Fig. 69, specimen E)

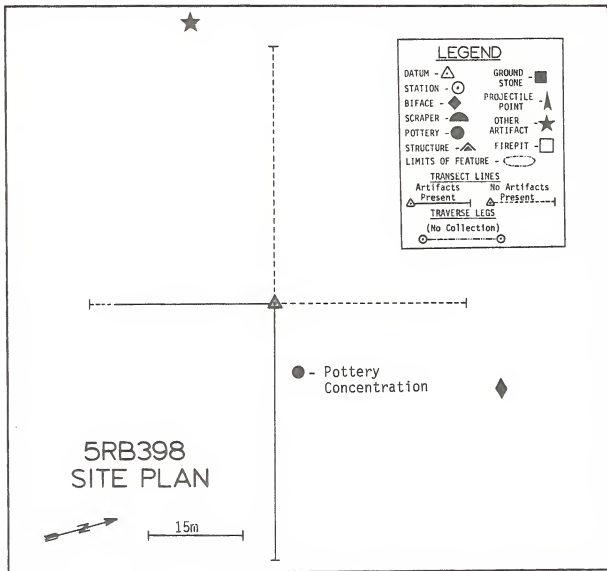


Figure 35. Site plan for 5RB398, located just north of Oil Shale Lease Tract 5 and recommended for nomination to the National Register of Historic Places.



Figure 36. Site 5RB398, located just north of oil shale lease tract 5.

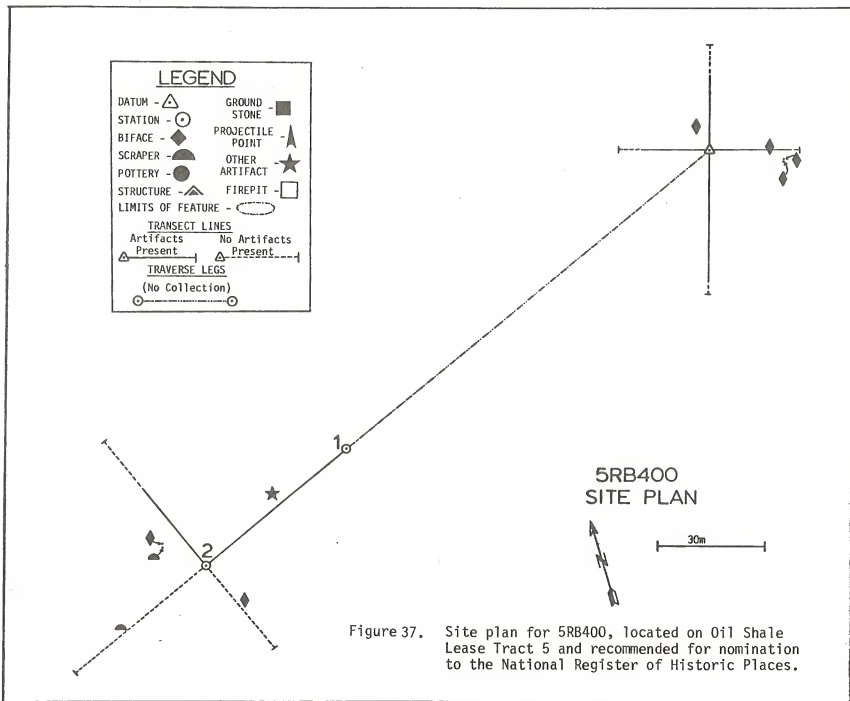


Figure 37. Site plan for 5RB400, located on Oil Shale Lease Tract 5 and recommended for nomination to the National Register of Historic Places.



Figure 38. View of site 5RB400, located on oil shale lease tract 5. The tripod (in front of trees at left center of photo) is at station 1.

Site 5RB400 (continued)

2 scrapers, 61 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB400 has considerable potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB402

Site Type: open lithic

Aspect: S Elevation: 6700 ft. (2042 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 550 m.

Site Description: a light lithic scatter over several small openings in the tree cover. No hearths were present.

Artifacts Collected: 1 type 3a projectile point (Fig. 62, specimen B), and 10 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB402 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB404

Site Type: open lithic

Aspect: S Elevation: 6660 ft. (2030 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 350 m.

Site Description: a thin scatter of flakes washing down a slope to the east from a low ridgetop. No hearths were present.

Artifacts Collected: 1 biface fragment and 17 waste flakes

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB404 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB406

Site Type: open lithic

Aspect: S Elevation: 6760 ft. (2060 m.)

Site 5RB406 (continued)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 150 m.

Site Description: a lithic scatter in an area of pinon-juniper which has been anchor-chained. No hearths were present.

Artifacts Collected: some partially mineralized bone fragments

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB406 has been extensively disturbed by anchor chaining and has no potential for yielding information important to prehistory. It should be evaluated for possible paleontological values, but no further archaeological action is required.

Site Number: 5RB408

Site Type: open lithic

Aspect: S Elevation: 6640 ft. (2024 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 600 m.

Site Description: a lithic scatter consisting of a projectile point and flakes. Several modern firepits with historic trash were nearby.

Artifacts Collected: 1 type 4a projectile point (Fig. 63, specimen A)

Features: none Cultural Affiliation: post-horticultural

Evaluation: 5RB408 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB410

Site Type: open prehistoric camp

Aspect: S Elevation: 6550 ft. (1996 m.)

Vegetative Type: pinon-juniper woodland, mountain shrubland

Nearest Water: ephemeral stream - 650 m.

Site Description: the site appears to be a large open camp site. Cores, tools, flakes, and ceramics were found scattered over the entire area. A road bisects the site and has probably led to some dispersal of the cultural debris. Burned bone fragments were observed but no obvious hearths were present. See Figures 39 and 40.

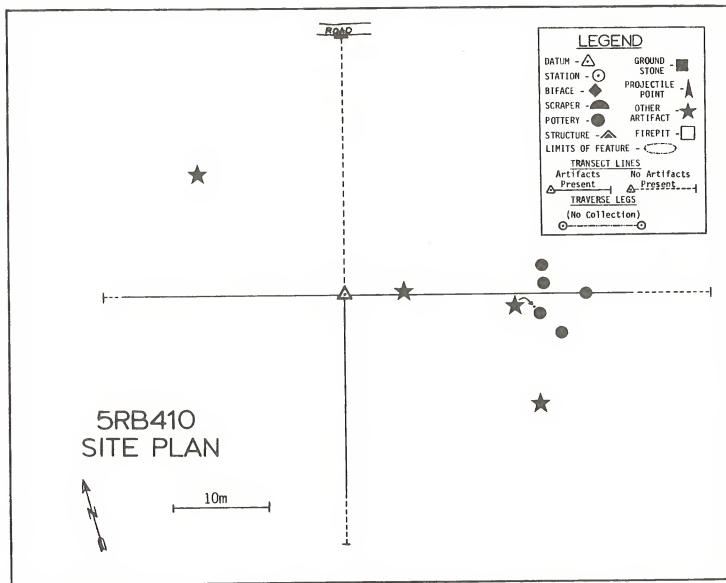


Figure 39. Site plan for 5RB410, located on Oil Shale Lease Tract 5 and recommended for nomination to the National Register of Historic Places.



Figure 40. View of site 5RB410, located on oil shale lease tract 5.

Site 5RB410 (continued)

Artifacts Collected: 41 sherds of Shoshoni pottery (see ceramics section),
1 core, 3 scrapers, 1 utilized flake, 34 waste flakes.

Features: none Cultural Affiliation: probably Ute or Shoshoni

Evaluation: 5RB410 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places. The site has apparent depth of deposit and should bear considerably on our understanding of the regional version of the Late Prehistoric Period.

Tract 6

Generalized locations of the sites discussed below are shown in Figure 8. Eighteen sites have been located to date on tract 6, 7 of which also occur on tract 4 due to the overlap of the tracts. All of the tract 6 sites are prehistoric. They are described below in numerical order.

Site Number: 5RB41 - see tract 4 discussion for site description

Site Number: 5RB94 - see tract 4 discussion for site description

Site Number: 5RB412 Site Type: open lithic

Aspect: S Elevation: 6720 ft. (2048 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 1200 m.

Site Description: a scatter of flakes over a ridgetop, including numerous retouch flakes in an anthill. No hearths were present.

Artifacts Collected: 1 type 5d projectile point (Fig. 66, specimen B), 1 core, 1 scraper, and 3 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 5RB412 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB413 - see tract 4 discussion for site description

Site Number: 5RB414

Site Type: open lithic

Aspect: S

Elevation: 6860 ft. (2091 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 550 m.

Site Description: the site is on a small, relatively flat, ridge top. Flakes and tools seem to be washing out of a thin depositional layer. No hearths were present.

Artifacts Collected: 1 biface fragment, 3 utilized flakes, and 7 waste flakes.

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB414 lacks potential for yielding information important to prehistory but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 5RB415 - see tract 4 discussion for site description

Site Number: 5RB416

Site Type: open lithic

Aspect: S

Elevation: 6780 ft. (2067 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: ephemeral stream - 350 m.

Site Description: artifactual material consists of a scatter of lithic debris, mostly red quartzite flakes. Much of the material was found in shallow washes in the road which crossed the site.

Artifacts Collected: none

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB416 has been severely disturbed by road and pipeline construction and is not eligible for nomination to the National Register of Historic Places. No further action is required.

Site Number: 5RB418

Site Type: open architectural

Aspect: S

Elevation: 6700 ft. (2042 m.)

Vegetative Type: pinon-juniper woodland

Site 5RB418 (continued)

Nearest Water: ephemeral stream - 1000 m.

Site Description: one definite and one possible wickiup were present, along with two hearth areas, potsherd concentrations, and scattered lithic debris. The site was located on a fairly narrow pinon-juniper covered ridgetop. see Figures 41, 42, 43, and 44.

Artifacts Collected: 3 type 1 projectile points (Fig. 61, specimens C, I, and J), 1 type 2 projectile point (Fig. 61, specimen K), 1 type 5b projectile point (Fig. 65, specimen M), 3 unclassifiable projectile point fragments, 9 biface fragments, 2 manos (one pictured in Fig. 73, specimen C), 3 metate fragments (2 pictured in Fig. 76, specimen B and Fig. 77, specimen B), 1 core, 2 scrapers, 5 utilized flakes, 49 waste flakes, 135 sherds of Shoshoni pottery (see ceramics section), 8 pieces of an historic porcelain object, and 4 metal strips (Fig. 81, specimens A,B,C, and D).

Features: feature 1 - hearth with large quantities of potsherds and lithic material nearby; feature 2 - wickiup (see Fig. 44); and feature 3 - hearth

Cultural Affiliation: probably post-1820 Ute occupation

Evaluation: 5RB418 has considerable potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB420

Site Type: open lithic

Aspect: S

Elevation: 6720 ft. (2048 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 650 m.

Site Description: a thin scatter of flakes, retouch flakes in an anthill, and a projectile point base were present at the site, which may be associated with 5RB418, located 150 m. south. No hearths were present.

Artifacts Collected: 1 unclassifiable projectile point fragment, 16 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB420 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

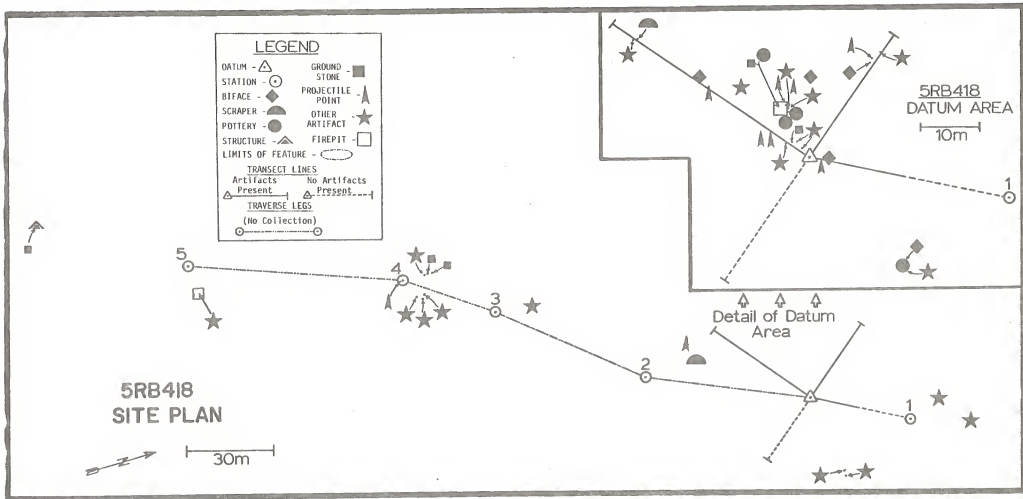


Figure 41. Site plan for 5RB418, located on Oil Shale Lease Tract 6 and recommended for nomination to the National Register of Historic Places.



Figure 42. View of site 5RB418, located on a narrow ridgetop on tract 6.



Figure 43. Possible remains of a wickiup structure at 5RB418. The tripod (left center of photo) is at the datum point.



Figure 44. View of wickiup structure found at site 5RB418. A ground stone fragment was found within the structure.

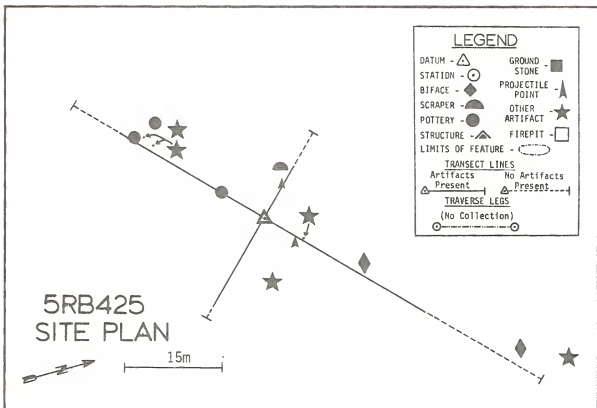


Figure 45. Site plan for 5RB425, located on Oil Shale Lease Tract 6 and recommended for nomination to the National Register of Historic Places.



Figure 46. View of site 5RB425, located on oil shale lease tract 6.

Site 5RB427 (continued)

Aspect: S Elevation: 6600 ft. (2012 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 750 m.

Site Description: a thin scatter of debitage around a possible collapsed wickiup. The area seems to be eroding rapidly due to the narrowness of the ridge on which it is located. No hearths were present.

Artifacts Collected: 1 biface (Fig. 68, specimen A). 1 biface fragment, 1 mano, 5 waste flakes.

Features: possible collapsed wickiup

Cultural Affiliation: undetermined

Evaluation: 5RB427 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 5RB428

Site Type: open lithic

Aspect: S Elevation: 6620 ft. (2018 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: perennial stream - 800 m.

Site Description: a scatter of flakes and tools at the head of a ridge. No hearths were present.

Artifacts Collected: 2 biface fragments

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB428 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered.

Site Number: 5RB432

Site Type: open prehistoric camp

Aspect: SE Elevation: 6600 ft. (2012 m.)

Vegetative Type: pinon-juniper woodland

Nearest Water: perennial stream - 800 m.

Site 5RB432 (continued)

Site Description: an extensive lithic scatter with numerous projectile points, bifaces, scrapers, and flakes. Several pottery fragments were also present. See Figures 47 and 48.

Artifacts Collected: 1 type 4a projectile point (Fig. 63, specimen E), 3 type 5a projectile points (Fig. 65, specimens G, H, and I), 1 type 5c projectile point (Fig. 66, specimen A), 5 unclassifiable projectile point fragments, 1 drill (Fig. 69, specimen C), 6 scrapers, 35 waste flakes, and 22 sherds of Fremont pottery (see ceramics section). Seven biface fragments were also collected.

Features: feature 1 - firepit

Cultural Affiliation: probably Fremont

Evaluation: 5RB432 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 5RB448

Site Type: open lithic

Aspect: N

Elevation: 6720 ft. (2148 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 425 m.

Site Description: a thin scatter of flakes located near an anthill. No hearths were present.

Artifacts Collected: none

Features: none

Cultural Affiliation: undetermined

Evaluation: 5RB448 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Tract 7

Generalized locations of the sites described below are shown in Figure 49. Five sites have been located to date on tract 7. All but 42UN498 are prehistoric. The sites are described below in numerical order.

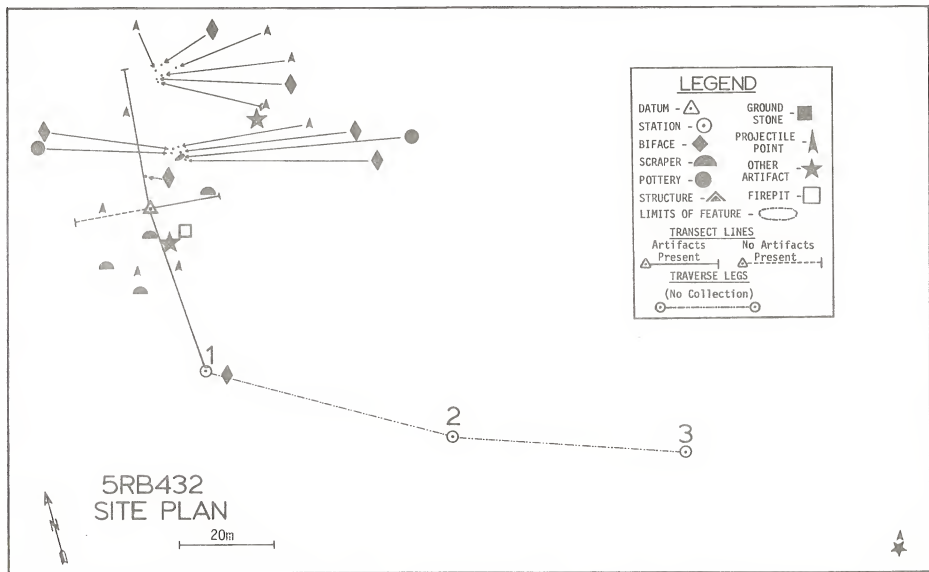


Figure 47. Site plan for 5RB432, located on Oil Shale Lease Tract 6 and recommended for nomination to the National Register of Historic Places.

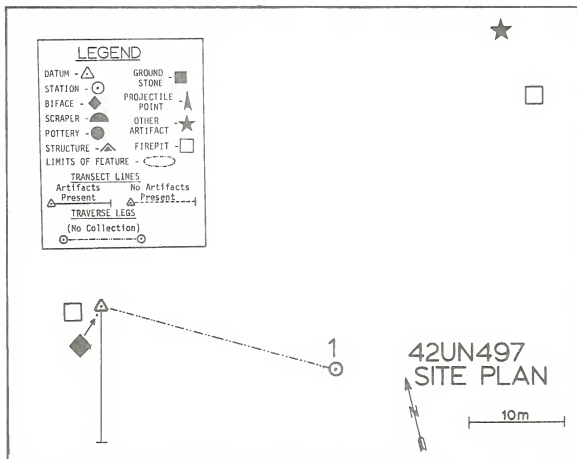
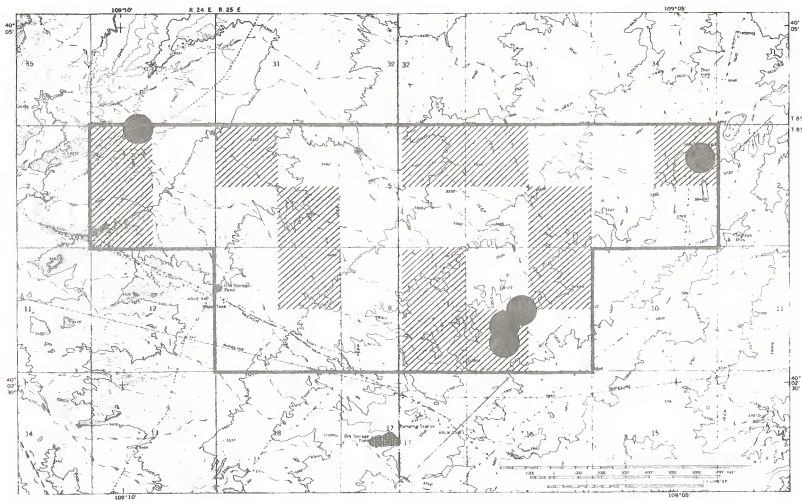


Figure 50. Site plan for 42UN497, located on Oil Shale Lease Tract 7 and recommended for nomination to the National Register of Historic Places.



Figure 48. View of site 5RB432, located on oil shale lease tract 6.




 Area Surveyed,
 1976


 Site Location



Figure 49. Map of in situ oil shale lease tract 7, showing the location of the areas surveyed in 1976 and the location of archaeological sites.

Site Number: 42UN496

Site Type: open prehistoric camp

Aspect: S

Elevation: 5240 ft. (1597 m.)

Vegetative Type: shadscale-greasewood shrubland

Nearest Water: ephemeral stream - 100 m.

Site Description: the site consisted of retouch flakes in 4 anthills and a complete mano, all located on a stabilized sand dune. No hearths were present.

Artifacts Collected: 1 mano (Fig. 74, specimen B), 4 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: 42UN496 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 42UN497

Site Type: sheltered camp

Aspect: S

Elevation: 5760 ft. (1756 m.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 300 m.

Site Description: several rock shelter areas where cultural debris in the form of flakes, a biface, and burned bone was washing down a slope. See Figures 50 and 51.

Artifacts Collected: 1 biface fragment, 1 metate fragment, 1 utilized flake, 12 waste flakes

Features: two areas containing ash-stained soil, burned rock and bone were recorded as features 1 and 2.

Cultural Affiliation: undetermined

Evaluation: 42UN497 has potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 42UN498

Site Type: open historic camp

Aspect: SE

Elevation: 5780 ft. (1762 m.)

Vegetative Type: sagebrush shrubland

Nearest Water: ephemeral stream - 100 m.



Figure 51. View of the rock shelter area at site 42UN497 on tract 7. The datum point is near the packs and coats at the right center of the photo.

Site 42UN498 (continued)

Site Description: a scatter of historic trash (nails, tin cans, glass fragments). No hearths were present.

Artifacts Collected: tin cans, glass fragments

Features: none Cultural Affiliation: historic, probably a sheep-herder's camp, post-1915

Evaluation: 42UN498 lacks potential for yielding further information. No further action is required.

Site Number: 42UN500

Site Type: sheltered camp

Aspect: W

Elevation: 5770 ft. (1759 m.)

Vegetative Type: sagebrush-shadscale-greasewood shrubland

Nearest Water: ephemeral stream - 150 m.

Site Description: the site consisted of two concentrations of flakes and tools, each in a rock shelter area. The two rock shelters face each other across a small drainage. The southernmost rock shelter has been partially disturbed by pot hunter excavations. See Figures 52 and 53.

Artifacts Collected: 5 biface fragments, 2 manos (1 pictured in Fig. 73, specimen D), 1 burned bone fragment, and 15 waste flakes.

Features: at least 2 obvious firepit areas were present in the southern rock shelter and more are undoubtedly buried there.

Cultural Affiliation: undetermined

Evaluation: 42UN500, though disturbed by recent vandalism, still has potential for yielding information important to prehistory. Undisturbed areas remain in the vandalized portion of the site and a large part of the site is completely undisturbed. The depth of fill makes this site unique to the Utah portion of the survey. It is recommended for nomination to the National Register of Historic Places.

Site Number: 42UN502

Site Type: sheltered architectural

Aspect: NE

Elevation: 5800 ft. (1768 m.)

Vegetative Type: desert shrubland

Nearest Water: ephemeral stream - 75 m.

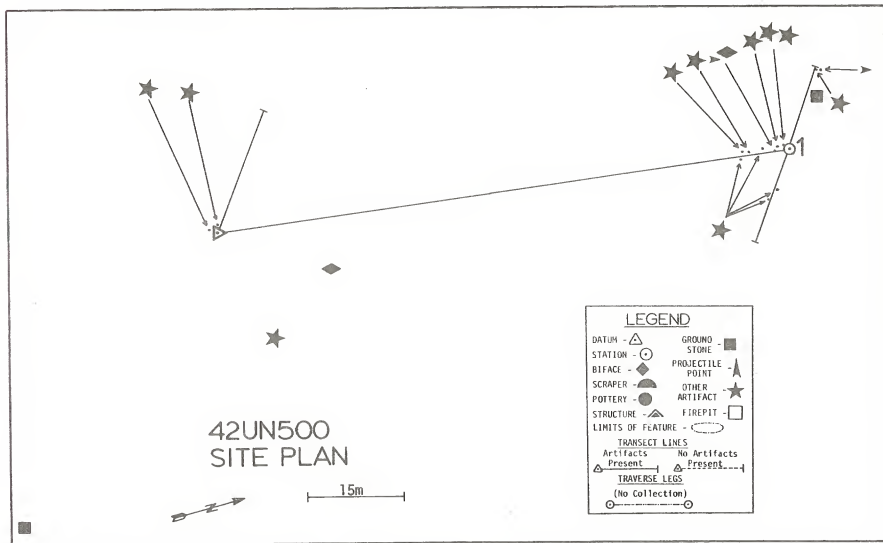


Figure 52. Site plan for 42UN500, located on Oil Shale Lease Tract 7 and recommended for nomination to the National Register of Historic Places.



Figure 53. View of the southernmost rock shelter at site 42UN500, located on oil shale tract 7 in Utah.

Site 42UN502 (continued)

Site Description: a small rock structure constructed against a rock face on a ledge. The purpose or origin of this structure are undetermined.

Artifacts Collected: none

Features: one small structure (see structures section and Fig. 90)

Cultural Affiliation: undetermined

Evaluation: 42UN502 lacks potential for yielding further information and requires no further action.

Tract 8

Generalized locations of the sites located on tract 8 are shown in Figure 54. Four sites have been located to date on the tract, two pre-historic and two of undetermined origin but probably historic. The sites are described below in numerical order.

Site Number: 42UN505

Site Type: open lithic

Aspect: S

Elevation: 5260 ft. (1603 m.)

Vegetative Type: desert shrubland

Nearest Water: ephemeral stream - 150 m.

Site Description: a thin scatter of flakes and tools on the south side of a low sagebrush knoll. No hearths were present.

Artifacts Collected: 1 scraper, 3 utilized flakes, 4 waste flakes

Features: none

Cultural Affiliation: undetermined

Evaluation: this site lacks potential for yielding information important to prehistory but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 42UN507

Site Type: open architectural

Aspect: W

Elevation: 5480 ft. (1670 m.)

Vegetative Type: desert shrubland

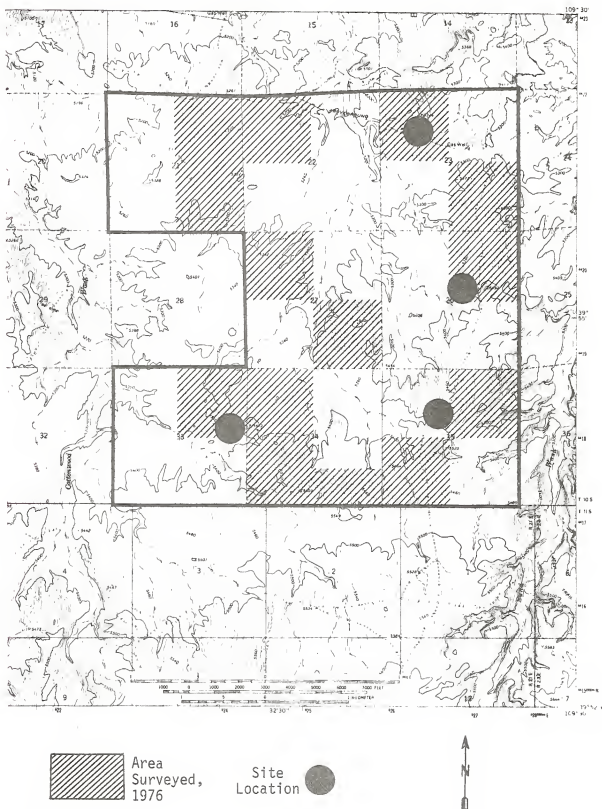


Figure 54. Map of in situ oil shale lease tract 8, showing areas surveyed in 1976 and the location of archaeological sites.

Site 42UN507 (continued)

Nearest Water: ephemeral stream - 250 m.

Site Description: a small rock structure built against a rock face. The structure was filled with small rocks and other debris but it was evident that some of the component rocks had been fireburned. See Figure 55.

Artifacts Collected: none

Features: small rock structure

Cultural Affiliation: undetermined, but probably build by shepherders in historic times.

Evaluation: 42UN507 is unique to the region. It has structural similarities to 42UN502 but is apparently not disturbed. The function, age, and cultural affiliations of the site are unknown. We recommend the site to the National Register of Historic Places on the grounds that this type is rare and that 42UN507 is the best example known at this time.

Site Number: 42UN508

Site Type: open architectural

Aspect: SW

Elevation: 5460 ft. (1664 m.)

Vegetative Type: shadscale-greasewood shrubland

Nearest Water: ephemeral stream - 500 m.

Site Description: a U - shaped rock wall built against a rock face. No hearths were present. See Fig. 91 and structures section.

Artifacts Collected: none

Features: one stone structure, there were no other components to the site.

Cultural Affiliation: undetermined, but probably built by shepherders in historic times.

Evaluation: 42UN508 lacks potential for yielding further information and no further action is required.

Site Number: 42UN509

Site Type: open lithic

Aspect: SE

Elevation: 5390 ft. (1643 m.)

Vegetative Type: sagebrush-shadscale-greasewood shrubland

Nearest Water: ephemeral stream - 350 m.



Figure 55. Small rock structure on oil shale tract 8 which constitutes site 42UN507. The rule in the photo is one meter long on each side.

Site 42UN509 (continued)

Site Description: an end scraper and 2 flakes in a sagebrush-shadscale flat between two high knolls. No hearths were present.

Artifacts Collected: 1 scraper (Fig. 70, specimen D), 2 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 42UN509 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Tract 9

Generalized locations of the archaeological sites located to date on tract 9 are shown in Figure 56. Four sites are known to exist on the tract, all prehistoric. In addition, a rock art site (42UN503) is included although it is located just north of the tract proper. The sites are described below in numerical order.

Site Number: 42UN499

Site Type: open lithic

Aspect: SW

Elevation: 6550 ft. (1996 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 400 m.

Site Description: the site is in a small saddle between two high knolls along the top of a ridge. A scatter of flakes and one projectile point were concentrated in a fairly small area. No hearths were present.

Artifacts Collected: 1 type 5b projectile point (Fig. 65, specimen R), 3 biface fragments, and 21 waste flakes.

Features: none Cultural Affiliation: undetermined

Evaluation: 42UN499 lacks potential for yielding information important to prehistory or other scientific values. No further action is required.

Site Number: 42UN501

Site Type: open prehistoric camp

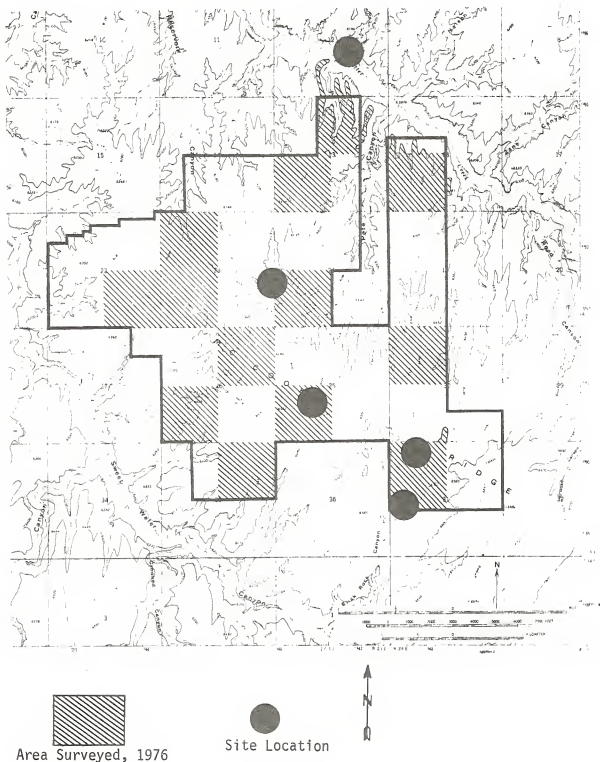


Figure 56. Map of in situ oil shale lease tract 9, showing the areas surveyed in 1976 and the location of archaeological sites.

Site 42UN501 (continued)

Aspect: W Elevation: 6420 ft. (1957 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 500 m.

Site Description: an extensive scatter of lithic debris on a flat ridgetop. Present were numerous projectile points, bifaces, flakes, and other stone tools. No hearths were present. See Figures 57 and 58.

Artifacts Collected: 3 type 1 projectile points (Fig. 61, specimens E, F, and H), 3 type 5b projectile points (Fig. 65, specimens L, P, and U), 5 unclassifiable projectile point fragments, 2 complete bifaces (Fig. 67, specimens A and B), 24 biface fragments, 1 drill (Fig. 69, specimen D), 1 mano, 2 metate fragments, 9 scrapers, 1 button, 1 piece of bone, 7 utilized flakes, 85 waste flakes.

Features: none Cultural Affiliation: undetermined, but possibly Fremont

Evaluation: 42UN501 has tremendous potential for yielding information important to prehistory and is recommended for nomination to the National Register of Historic Places.

Site Number: 42UN503

Site Type: petrograph

Note: 42UN503 is not actually located within the tract boundaries, but is nearby and susceptible to being disturbed by development activities.

Aspect: SW Elevation: 5920 ft. (1804 m.)

Vegetative Type: greasewood bottomland

Nearest Water: perennial stream - 100 m.

Site Description: two rock art panels, one painted and one pecked. No artifacts were present. See Figures 59 and 60.

Artifacts Collected: none

Features: two rock art panels Cultural Affiliation: probably Fremont

Evaluation: these petrographs are likely of Fremont origin. The Bitter Creek Canyon should be surveyed for further evidence of Fremont occupation. 42UN503 is representative of a rare site type for this area and may be the best example in Utah of the rock art style characteristic of the Douglas Creek Area in Rio Blanco County, Colorado (the Canyon Pintado His-

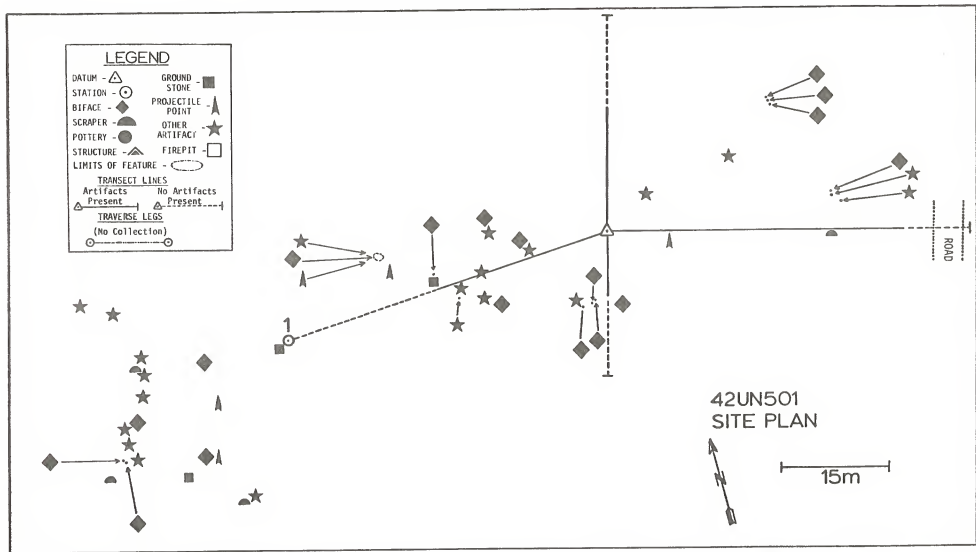


Figure 57. Site plan for 42UN501, located on Oil Shale Lease Tract 9 and recommended for nomination to the National Register of Historic Places.



Figure 58. View of site 42UN501, located on oil shale tract 9 in Utah. The tripod (between the two crew members) is at the datum point.



Figure 59. Pictograph panel at site 42UN503, located north of oil shale tract 9 in Utah. The rule is one meter on each side.



Figure 60. Petroglyph panel at site 42UN503. The rule is one meter on each side. This panel is located a few meters east of the pictograph panel (Fig. 56).

Site 42UN503 (continued)

toric District). The site is recommended for nomination to the National Register of Historic Places.

Site Number: 42UN504

Site Type: open lithic

Aspect: SW

Elevation: 6530 ft. (1990 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 75 m.

Site Description: a very thin scatter of flakes, two projectile points, and two small log structures. The soil on the site was very shallow and no hearths were present.

Artifacts Collected: 1 type 3e projectile point (Fig. 62, specimen F), 1 type 5g projectile point (Fig. 66, specimen H)

Features: features 1 and 2 are small log structures at the base of two trees. See structures section and Figure 89.

Cultural Affiliation: Archaic with possible Paleo-Indian and recent components (the logs in the small structures were cut with metal axes).

Evaluation: 42UN504 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

Site Number: 42UN506

Site Type: open lithic

Aspect: S

Elevation: 6600 ft. (2011 m.)

Vegetative Type: pinon-juniper woodland, sagebrush shrubland

Nearest Water: ephemeral stream - 500 m.

Site Description: a few scattered flakes and tools in a pinon-juniper grove and adjacent sagebrush flat. No hearths were present. See Figure 7.

Artifacts Collected: 4 utilized flakes, 1 waste flake

Features: none

Cultural Affiliation: undetermined

Evaluation: 42UN506 lacks potential for yielding information important to prehistory, but may have other scientific values and should be given further consideration if endangered by development.

ARTIFACTS

Lithic Terminology

The terminology used for classification of rock types in this report follows Helfer (1970). Chalcedony is used as a general term for many cryptocrystalline rocks, including chert, jasper, petrified wood, agate, and others, Obsidian is volcanic glass. Sandstone consists of sand grains cemented together and quartzite is sandstone which has become so firmly cemented that it breaks across the grains of sand instead of around them.

Chipped Stone

Projectile Points

A total of 99 complete or fragmentary projectile points were recovered during the 1976 survey and previous projects on the oil shale lease tracts. Projectile points were separated from other bifacially flaked artifacts on the basis of being pointed, relatively thinner, and in some cases, notched. Descriptive terminology used in the projectile point discussion follows Irwin-Williams and Irwin (1966:65). We placed the projectile points into 5 basic types: 1) unnotched; 2) basally notched; 3) stemmed; 4) corner notched; and 5) side notched. This system in part is patterned after the one used by Breternitz (1970).

Unnotched points: Type 1. All of the type 1 points are essentially similar, making the use of sub-types unnecessary.

Description: the unnotched projectile points are all small (under 3 cm. long), triangular, and have concave bases (see Fig. 61).

Number of specimens: 10, all are fragmentary to some extent.

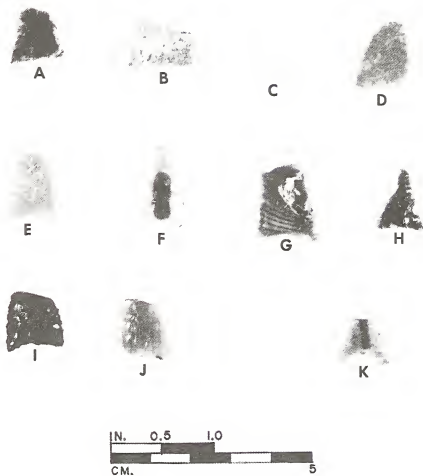


Figure 61. Unnotched (type 1) and basally notched (type 2) projectile points. Specimens A through J are type 1. Specimen K is type 2. Origins: A - 5RB18, B - 5RB425, C-I-J - 5RB418, D - 5RB44, E-F-H - 42UN501, G - 5RB43, and K - 5RB418.

Material: 4 obsidian, 2 quartzite, and 4 chalcedony.

Measurements: due to breakage, only one specimen was measurable as to length. It was 2.1 cm. long. The tips of the other 8 points were broken, but we estimate that they would have ranged in length from about 1.9 to 2.9 cm. Basal (maximum) widths of six measurable specimens were: 1.5, 1.5, 1.6, 1.6, 1.6, and 1.3 cm. Mean width = 1.5 cm.

Cross sections: 2 plano-convex; 8 bi-convex.

Sources: 5RB418 (3), 42UN501 (3), 5RB18 (1), 5RB425 (1), 5RB43 (1), 5RB44 (1).

Comparisons: these specimens bear some resemblance to the Cottonwood Triangular type as reported from Hoop Cave (Aikens 1970), except for the fact that they have concave bases. Leach (1970) describes similar specimens as Type 1b from Deluge Shelter, all coming from the Fremont occupation levels. This type was also uncovered at Boundary Village (Leach 1966), a Fremont site, and is labeled type 4f. The most striking thing about these points is that they appear to be unnotched Desert Side-Notched points (see types 5a and 5b). This becomes even more interesting when it is realized that Desert Side-Notched points were recovered from four of the five sites at which type 1 points were found.

Cultural affiliation: we feel that the Colorado type 1 points are probably Ute in origin, based on pottery and historic artifacts found at 5RB418 and 5RB425. Conjecturally, the type 1 points from 42UN501, in Utah, could be of Fremont origin since a Fremont pictograph site (42UN503) was located in the same area.

Basally notched: Type 2.

Description: The single type 2 point is fragmentary (Fig. 61), small, triangular, and has a concave base with a distinctive notch at the apex of the identification.

Number of specimens: 1.

Material: obsidian.

Measurements: length could not be measured due to breakage. We estimate that the point was about 2.5 cm. long. Basal width was about 1.6 cm.

Cross section: plano-convex.

Source: 5RB418.

Comparisons: this point would be identical to the type 1 points, if it were not for the small basal notch. It is also similar to type 5b, except for the absence of side notches.

Cultural affiliation: probably historic Ute (post 1820), based on pottery and historic artifacts at 5RB418.

Stemmed points: Type 3a.

Description: small (under 3 cm. long), stemmed points with concave bases (Fig.62). One is basally ground.

Number of specimens: 2.

Material: both are chalcedony.

Measurements: length, 2.4 cm. and 2.7 cm. (estimated). Maximum width, 1.6 cm. and 1.5 cm.

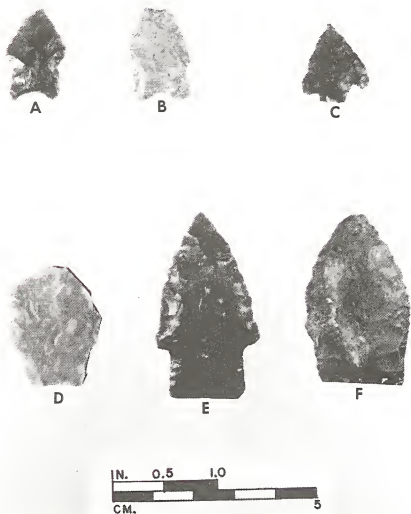


Figure 62. Stemmed (type 3) projectile points. Specimens A and B are type 3a, C is type 3b, D is type 3c, E is type 3d, and F is type 3e. Origins: A - isolated find on tract 1, B - 5RB402, C - 5RB75, D - 5RB435, E - isolated find on tract 8, and F - 42UN504.

Cross section: both bi-convex.

Source: one is an isolated find, and one is from 5RB402.

Comparisons: stemmed, indented base points have been frequently found in the western United States (Lister 1953). Most of these points from other areas have been significantly larger than the two specimens represented here, so the value of comparisons is questionable. One similar point was found at the Moore or Casabier sites of the Uncompahgre Complex (Wormington and Lister 1956:11, Fig. 9). Several more similar points were found at the LoDaiska site (Irwin and Irwin 1959:23-24).

Cultural Affiliation: the basal grinding on one of the points would point to some antiquity, but its small size conflicts with that view. Since it was an isolated find, no further data is available. The unground point is the only artifact recovered from 5RB402. We feel that nothing can be said about the cultural affiliation of these points.

Stemmed points: Type 3b.

Description: this single point is small (under 2 cm.), generally triangular, and has a weakly oblique shoulder, with a very short stem, and slightly indented base (Fig. 62).

Number of specimens: 1.

Material: chalcedony.

Measurements: length 1.9cm.; maximum width 1.7 cm.

Cross section: bi-convex.

Source: 5RB75.

Comparisons: this point resembles somewhat the Eastgate Split Stem type of the Great Basin, but is shorter and less deeply basally indented than the typical Eastgate specimen. Similarities also exist when compared with Buckles' (1971) type 8 points, which are in the same general size range but have relatively longer stems.

Cultural Affiliation: this point was the only artifact recovered from the site. We can find no closely comparable types in the literature, and therefore, no speculation on cultural affiliation is possible.

Stemmed points: Type 3c.

Description: large, gradually contracting stem with a slightly concave base and rounded shoulder. (see Fig. 62)

Number of specimens: 1.

Material; chalcedony.

Measurements: the point is broken; only the base is present. An accurate estimate of total length is impossible, but we estimate that the point was about 5 - 7 cm. long. Width of the point near the base was 2.3 cm.

Cross section: bi-convex.

Source: 5RB435.

Comparisons: this point is stemmed with an indented base like those summarized by Lister (1953), but is more lanceolate in shape. Those Lister mentions are triangular. This point somewhat resembles the Humboldt concave base points from Hogup Cave (Aikens 1970: 43), but the shoulders are more rounded than on the Humboldt examples.

Cultural Affiliation: because only the base of the point was found, comparisons to points in the literature are inconclusive. Its relatively large size and the presence of basal grinding indicates it is rather old. The site, 5RB435, from which it came, produced pottery and may have more than one component. We do not feel we have enough data to assign a definite cultural affiliation to this specimen.

Stemmed points: Type 3d.

Description: large point with slightly convex edges, an abrupt shoulder, and a straight stem with a straight base. The base is heavily ground (Fig. 62).

Number of specimens: 1.

Material: chalcedony.

Measurements: length 4.6 cm.; maximum width 2.6 cm.

Cross section: bi-convex.

Source: isolated find on oil shale tract 8 in Uintah County, Utah.

Comparisons: we believe that this is a Scottsbluff projectile point which has been reworked into a smaller form. Scottsbluff points were recovered from the Finley site in southwestern Wyoming (Howard 1943).

Cultural affiliation: we believe that this point was reworked in archaic times, based on the fact that it was found next to a projectile point base which appears to be a Bitterroot Side-Notched point similar to those from Hogup Cave which were primarily found in levels dating from 5300 - 1250 B.C.

Stemmed points: Type 3e.

Description: the single specimen of this type is large with convex blade edges, rounded shoulders, and apparently a straight stem, although the base is missing (Fig. 62). The upper edges of the base are heavily ground.

Number of specimens: 1.

Material: chalcedony.

Measurements: because the base is missing, the length of the point cannot be determined. The portion which is present is 4.3 cm. long. Maximum width is 2.7 cm.

Source: 42UN504.

Comparisons: since the base is lacking, comparisons are uncertain. In general form, this point resembles Hell Gap points, and the basal grinding would strengthen this association. The point, however, appears to be significantly smaller than the typical Paleo-Indian points.

Cultural affiliation: We hesitate, because of the missing base and relatively small size to call this a Paleo-Indian point. The only other projectile point from site 42UN504 is a large point which most closely resembles the Elko eared or Elko split step points, which date from about 6400 - 1250 B.C. at Hogup Cave. Thus, this point may be an Archaic type or could be an "heirloom" Paleo-Indian point on an Archaic site.

Corner notched points: Type 4a.

Description: these points are small (under 3 cm. long), corner notched, with straight to slightly convex edges, abrupt to extended oblique

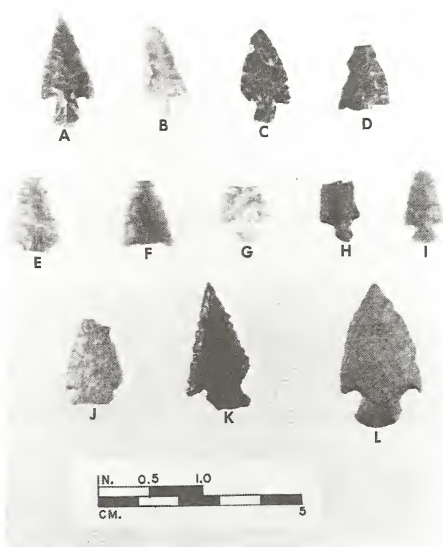


Figure 63. Corner notched (type 4) projectile points. Specimens A through I are type 4a. Specimen J is type 4b, K is 4c, and L is 4d. Origins: A - 5RB408, B - 5RB382, C - 5RB319, D - 5RB43, E - 5RB432, F - 5RB440, G - 5RB382, H - 5RB443, I - 5RB386, J - 5RB376, K - isolated find on tract 1, and L - 5RB447.

shoulders, straight to expanding stems, and straight to convex bases. They are generally triangular in form (Fig. 63).

Number of specimens: 9.

Material: 1 quartzite and 8 chalcedony.

Measurements: since the tips of eight of the points are missing, only one point can be measured as to length. It is 2.8 cm. long. We estimated the lengths of the other eight points at: 2.4 cm., 2.5 cm., 2.4 cm., 2.6 cm., 2.6 cm., 2.4 cm., 2.5 cm., and 2.3 cm. Maximum width of seven points could be measured: 1.4 cm., 1.0 cm., 1.3 cm., 1.3 cm., 1.3 cm., 1.2 cm. and 1.0 cm. Mean width is 1.2 cm. Widths of the two points which were not measurable are estimated at 1.4 cm. and 1.5 cm.

Cross section: 1 plano-convex and 8 bi-convex.

Sources: 5RB408, 5RB440, 5RB432, 5RB386, 5RB43, 5RB319, 5RB443, and 5RB382 (2).

Comparisons: these specimens closely resemble Fremont point types from Deluge Shelter (Type 4a), Boundary Village (Leach 1966: Type 3a), Caldwell Village (Ambler 1966), and several Dinosaur National Monument sites as described by Breternitz (1970). These are not exclusive of Fremont origin as similar points have been discovered as part of the Uncompahgre Complex (Wormington and Lister 1956), and from Basketmaker III-Pueblo I sites in the Southwest (Rudy 1953). Somewhat similar points were recovered from both LoDaisKa (Irwin and Irwin 1959) and Magic Mountain (Irwin-Williams and Irwin 1966), located at the eastern edge of the Rockies immediately west of Denver.

Cultural affiliation: three of the sites at which these points were found had no other diagnostic artifacts present. These were 5RB408, 5RB440, and 5RB386. At 5RB432, however, potsherds were recovered which proved to be of Fremont origin. Small side-notched projectile points were also found at 5RB432. At 5RB382, the only other artifact of note was a small bead apparently made from a piece of shell. 5RB43 is a multi-component site.

One of the type 4a points was found at 5RB43 along with small side-notched points and apparent Archaic points. No pottery was recovered from this extensively collected site. One of these points was found at 5RB319, along with a small metal bead. This could indicate that the point is of historic origin, but it could also be a multi-component site. As at 5RB319, one of the points was found on 5RB443 along with several small glass beads. The site has a historic component but could be multi-component.

The presence of this type at 5RB432, along with the Fremont pottery, points strongly toward the site being of Fremont origin. The evidence is less clear at the other sites, but there is a distinct possibility that these were produced after white contact, and therefore would not have been Fremont.

Corner notched points: Type 4b.

Description: a small, less than 3 cm. long, triangular, corner notched projectile point with straight edges. It has a slightly concave base which is almost as wide as the body and is very thin in cross section (Fig. 63).

Number of specimens: 1.

Material: chalcedony.

Measurements: the tip is broken, but we estimate total length at about 2.8 cm. One of the tangs is also missing but maximum width is about 1.6 cm.

Cross section: bi-convex.

Source: 5RB376.

Comparisons: this thin, finely produced point is unlike most projectile points reported from west of the Continental Divide. Of the western points, it most closely resembles Breternitz's type 3a from Dinosaur National Monument, especially the Lowell Spring Site, but is smaller and thinner than the Fremont points. This point most closely resembles some of the type aa arrow points from the LoDaisKa site west of Denver (Irwin and Irwin 1959:35).

Cultural affiliation: the only other projectile point from site 5RB376 was a small side-notched point, similar to many reported from Fremont and Ute sites in western Colorado and Utah. Since we do not feel that 5RB376 is a multi-component site, we believe that this point is probably of Ute or Fremont origin even though it is somewhat unusual for the Piceance Basin.

Corner notched points: Type 4c.

Description: the single point of this type is medium-sized, triangular, with straight edges (slightly serrated), rather deep corner notches, and an expanding stem with a straight base (Fig. 63).

Number of specimens: 1.

Material: chalcedony.

Measurements: length 3.2 cm. Estimated maximum width is 1.8 cm.

Cross section: bi-convex.

Source: isolated find on oil shale tract 1, Rio Blanco County, Colorado, T1S, R97W, Sec. 19.

Comparisons: this type is similar to type 4a, except for a wider stem and slightly more length than the 4a specimens. Comparable points have been reported from eastern Utah by Berry and Berry (1976: Type IX), from Dinosaur National Monument by Breternitz (1970: Type 3A), from the La Sal Mountain area of Utah by Hunt (1953, Figs. 14-15), and from other western sites.

Some of the Uncompahgre Complex points from western Colorado resemble this point, but to a lesser extent than the above. Olson et al. (1975) found points closely resembling this one during their survey of part of the Piceance Basin in 1975.

Cultural affiliation: Since this point is an isolated find, we have no context in which to consider it, but, based on comparisons to other points in the literature, we feel that it is possibly of Fremont origin.

Corner notched points: Type 4d.

Description: this point is large with convex edges, oblique-oblique shoulders, wide corner notches, and an expanding stem with convex base. (Fig. 63)

Number of Specimens: 1.

Material: fine grained quartzite.

Measurements: length 3.6 cm.; maximum width is 2.1 cm.

Cross section: bi-convex.

Source: 5RB447.

Comparisons: the most closely comparable points are of type MM26 from Magic Mountain, although these are slightly larger than our specimen. We can find no points in the literature for western Colorado or Utah which closely resemble this point, but the type 4b points from Deluge Shelter are similar.

Cultural Affiliation: no other diagnostic artifacts were present at 5RB447. We do not feel that we can assign a cultural affiliation to this type.

Corner notched points: Type 4e.

Description: large (over 3 cm. long) projectile points with convex edges, oblique-oblique to extended oblique shoulder, and expanding stems with straight to slightly convex bases. Two of the points have asymmetrical tangs and apparently were intentionally produced in this way (Fig. 64).

Number of specimens: 3.

Material: all chalcedony.

Measurements: length is measurable on two specimens, the third is broken. Length of the two measurable specimens were 3.1 cm. and 3.4 cm. The third specimen appears to have been longer, but an accurate estimate is not possible. Maximum width of two specimens was measurable: 2.2 cm. and 2.5 cm. Maximum width of the third point was estimated at 2.1 cm.

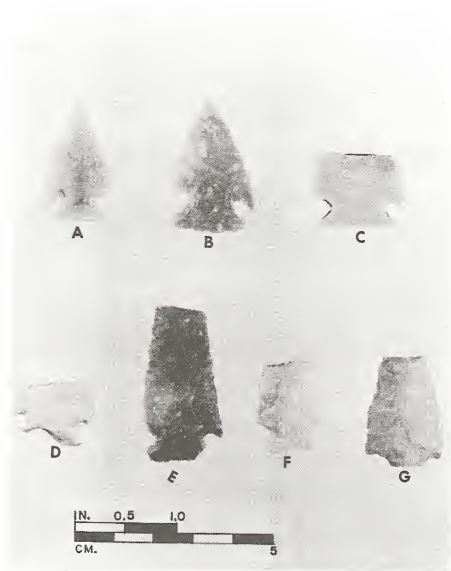


Figure 64. Corner notched (type 4) projectile points. Specimens A,B, and C are type 4e. Specimens D, E, F, and G are type 4f. Origins: A - 5RB383, B and C - 5RB43, D - 5RB434, E - 5RB433, F - 5RB417, and G - 5RB400.

Cross section: all are bi-convex.

Sources: 5RB383, 5RB43 (2).

Comparisons: these points correspond closely with the Elko Corner Notched type from Hogup Cave, Danger Cave, and other sites in the west. The asymmetrical tangs on two of the points are not typical of this type, but the points so closely resemble Elko Corner Notched in other respects, that we feel justified in so classifying them. Olson et al. (1975) described their type 4a (2 specimens) as resembling Elko Corner Notched also.

Cultural affiliation: at Hogup Cave, this type of point was found throughout the deposits to almost historic levels. Thus, it is difficult to assign a date to the type. No other diagnostic artifacts were recovered from 5RB383.

At 5RB43, where two of these points were found, a type 4a point and small side-notched points were also recovered. 5RB43 is probably a multi-component site with the 4e points representing the earlier occupation, but on the basis of the Hogup Cave data, the small and large types might also be contemporaneous.

Corner notched points: Type 4f.

Description: large (over 3.5 cm. long), straight edged, triangular projectile points with an abrupt to weakly oblique shoulder, expanding stem, and corner notched with a straight base (Fig. 64).

Number of specimens: 4.

Material: all chalcedony.

Measurements: tips are missing from all four specimens and the base is

missing from one. We estimate lengths for three of the points at: 5.5 cm., 4.8 cm., and 4.5 cm. Maximum widths were measurable on two specimens: 2.0 cm. and 1.8 cm. Widths of both the other two specimens is estimated to be 2.2 cm.

Cross sections: all bi-convex.

Sources: 5RB433, 5RB434, 5RB400, and 5RB417.

Comparisons: these points are similar to some from Luster Cave and the Taylor Site (Wormington and Lister 1956: 52, 99) in the Uncompahgre Complex of western Colorado. They also resemble point 88-92 from the LoDaisKa Site (Irwin and Irwin 1959: 32). Hunt (1953: 37) found several points during her survey of the La Sal Mountain area of Utah which resemble this type. Berry and Berry (1976) found a point of this type in eastern Utah, designating it Type XIX.

Cultural affiliation: no other diagnostic artifacts were found on any of the four sites from which these points came. We cannot assign a cultural affiliation to this type at this time. It is not a particularly common type and the information in the literature is not sufficient to allow for speculation regarding its cultural affiliation.

Side notched points: Type 5a.

Description: small (under 3.5 cm. long, most under 3 cm.), triangular, side-notched points with concave bases (Fig. 65). This type and type 5b are often referred to as Desert Side Notched.

Number of specimens: 10.

Material: 3 quartzite and 7 chalcedony.

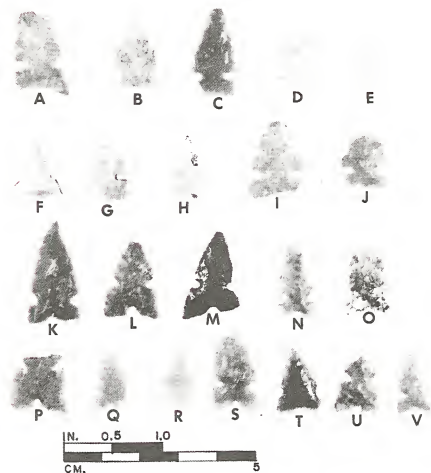


Figure 65. Side notched (type 5) projectile points. Specimens A through J are type 5a. Specimens K through V are type 5b. Origins: A and V - 5RB44, B - 5RB95, C - 5RB18, D and F - 5RB425, E-J-Q - 5RB43, G-H-I - 5RB432, K - 5RB125, L-P-U - 42UN501, M - 5RB418, N - 5RB376, O - 5RB441, R - 42UN499, S - 5RB144, T - 5RB429.

Measurements: due to tip breakage, the length is measurable on only 3 specimens: 1.9 cm., 2.1 cm., and 1.8 cm. Lengths of the other 7 points were estimated at: 2.1 cm., 2.5 cm., 2.1 cm., 2.0 cm., 2.2 cm., 2.2 cm., and 3.1 cm. Maximum width is measurable for 6 points: 1.3 cm., 1.4 cm., 1.3 cm., 1.3 cm., 1.3 cm., and 1.4 cm. Widths of the other 4 points are estimated at 1.5 cm., 1.7 cm., 1.3 cm., and 1.3 cm.

Cross sections: 3 plano-convex and 7 bi-convex.

Sources: 5RB425 (2), 5RB18, 5RB44, 5RB95, 5RB432 (3), and 5RB43 (2).

Comparisons: this type is extremely common in the western United States, ranging all the way from the northern plains (Kehoe 1966) to California (Baumhoff and Byrnes 1959), across the Great Basin, and into the southwest and Colorado. According to Shutler and Shutler (1963), it is thought to be associated with Shoshoni speaking peoples and to date no earlier than 1000 A.D. Leach (1970) recovered a number of type 5a points from a Fremont level at Deluge Shelter. The level was radio-carbon dated (Leach 1970: 305) at 920 A.D. \pm 85 years (CX0 894). A few points of this type were recovered from some of the other Dinosaur National Monument Fremont sites as reported by Breternitz (1970). Wormington (1955) describes this type of point from the Turner-Look Fremont site.

Cultural affiliation: Shoshoni pottery was recovered from 5RB425 and we believe that the points from that site are of Ute or Shoshoni origin. Turner Gray, Emery Variety pottery was found at 5RB432, and we feel that the type 5a points from that site are likely of Fremont origin.

Side notched points: Type 5b.

Description: small (under 3 cm. long), triangular, points with straight to slightly convex edges, side notches and notched bases. (Fig. 65)

This type is very similar to types 1, 2, and 5a.

Number of specimens: 12.

Material: 2 obsidian, and 10 chalcedony.

Measurements: Eight points are measurable as to length: 2.7 cm., 1.5 cm., 2.5 cm., 1.9 cm., 1.7 cm., 2.4 cm., 2.5 cm., and 1.7 cm. It should be noted that the 1.5 cm. long point appears to have been broken and re-sharpened. Estimated lengths of the 4 unmeasurable points are: 2.4 cm., 2.0 cm., 2.3 cm., and 2.9 cm. Maximum width is measurable on eight of the 12 specimens: 1.8 cm., 1.3 cm., 1.5 cm., 1.2 cm., 1.1 cm., 1.3 cm., 1.4 cm., and 1.3 cm. Widths of the 4 unmeasurable points are estimated to be: 1.6 cm., 1.3 cm., 1.3 cm., and 1.4 cm.

Cross sections: 6 plano-convex and 6 bi-convex.

Sources: 42UN501 (3), 5RB441, 5RB429, 5RB125, 5RB43, 5RB44, 42UN499, 5RB418, 5RB144, and 5RB376.

Comparisons: this type appears to be simply a basally notched variant of type 5a. It is also called Desert Side Notched in the literature and the comparisons discussed under 5a apply here also.

Cultural affiliation: because Turner Gray-Emery Variety pottery was found at two of the source sites (5RB144 and 5RB429), we believe that some of these points are of Fremont origin. Three of the points were

found at 42UN501, a site on tract 9 located about two miles south of a probable Fremont rock art site (42UN503). They may also be of Fremont origin, although the evidence is not conclusive. Abundant Shoshoni pottery was found at 5RB418 however, so this type of point was probably also produced by historical Ute people.

Side notched points: Type 5c.

Description: this single specimen is a very small (under 1.5 cm. long), triangular, side notched point, with a convex base. It differs from type 5a in being smaller and having a convex base (Fig. 66).

Number of specimens: 1.

Material: chalcedony.

Measurements: length 1.4 cm., maximum width is not measurable due to breakage, but we estimate that the width is about 1.1 cm.

Cross section: plano-convex.

Source: 5RB432.

Comparisons: tiny points such as this one are not frequently mentioned in the literature. Since this point was found at 5RB432 along with three type 5a points, it is probably a variant of the Desert Side Notched points. It is rather crudely manufactured with most retouching on one side of the flake. It gives the impression of having been made by a child.

Cultural affiliation: strictly because Turner Gray-Emerly Variety pottery was found on 5RB432, we believe that this point is probably of Fremont origin.



Figure 66. Side notched (type 5) projectile points. Specimen A is type 5c, B is type 5d, C and D are type 5e, E and F are type 5f, G is type 5h, H is type 5g, and I is type 5i. Origins: A - 5RB432, B - 5RB412, C and D - 5RB430, E - isolated find on tract 1, F - 5RB320, G - isolated find on tract 4, H - 42UN504, and I - isolated find on tract 8.

Side notched points: Type 5d.

Description: a very small (under 1.5 cm. long) triangular projectile point with shallow side notches near the straight base (Fig. 66).

Number of specimens: 1.

Material: quartzite.

Measurements: length 1.3 cm., maximum width 0.9 cm.

Cross section: bi-convex.

Source: 5RB412.

Comparisons: projectile points as small as this one are not common in the literature. This point would fit the Desert Side Notched category if it were not so tiny, and if its notches were deeper.

Cultural affiliation: no other diagnostic artifacts were found at 5RB412. We can make no speculation to the cultural affiliation of this point.

Side notched points: Type 5e.

Description: these points are small (under 2.5 cm. long), broadly side notched, wide in relation to length, with markedly convex bases (Fig. 66).

Number of specimens: 2.

Material: 1 chalcedony and 1 fine-grained quartzite.

Measurements: length: 2.1 cm. and 1.8 cm. Maximum width: 1.4 cm. on one specimen and an estimated 1.7 cm. on the second.

Cross section: both bi-convex.

Source: 5RB430.

Comparisons: the only projectile point in the literature even remotely resembling this type is described in Olson et al (1975) type 4b, specimen 151. Since this point was found in the Piceance Basin also, we may be dealing with a unique localized type.

Cultural affiliation: since no other diagnostic artifacts were found at 5RB430, we cannot make a statement concerning the cultural affiliation of this type.

Side notched points: Type 5f.

Description: a small (under 2.5 cm. long), slightly convex edged, side notched projectile point with its base narrower than its body. Base notched or convex. (Fig.66) Specimen E in Figure 66 is placed in this type rather conjecturally since both basal tangs are missing. This type closely resembles types 5a and 5b, except the bases are not as wide as the body, producing a nontriangular appearance.

Number of specimens: 2.

Material: 1 quartzite and 1 chalcedony.

Measurements: length: 2.0 and 2.3 cm. Maximum width: 1.3 and 1.5 cm.

Cross sections: both bi-convex.

Sources: One point is from 5RB320 and the other is an isolated find on tract 1 (T1s R97w Sec. 16).

Comparisons: side notched projectile points with the base narrower than the body were absent from the literature sources we checked. Therefore, no comparisons can be made.

Cultural affiliation: no other diagnostic artifacts were found on 5RB320. We can assign no cultural affiliation to this type. It may be a variant of types 5a and 5b

Side notched points: Type 5g.

Description: this single point base is from a large projectile point which is side notched near the base, and has a basal indentation (Fig.66).

Number of specimens: 1.

Material: quartzite.

Measurements: length is not measurable due to breakage, but we estimate the total length is about 3.5 cm. Maximum width is 2.0 cm.

Cross section: bi-convex.

Source: 42UN504.

Comparisons: this point resembles the Elko Eared points from Hogup and Danger Caves. In Hogup Cave, this type was found in levels dating from 1250 - 6400 B.C. This is definitely an Archaic type.

Cultural affiliation: Archaic.

Side notched points: Type 5h.

Description: this type is represented by a large point with one concave edge and one convex edge deeply side-notched near the base. The base is convex (Fig. 66).

Number of specimens: 1.

Material: chalcedony.

Measurements: the tip is broken, but we estimate the length at about 3.5 cm. Maximum width is 1.9 cm.

Cross section: bi-convex.

Source: isolated find on tract 4 (T2s, R98w, Sec. 28).

Comparisons: points similar to this one have been found at Magic Mountain (type MM18), LoDaisKa (type F), Pine Springs (Sharrock 1966: Fig. 45), and on the Uncompahgre Plateau of Colorado by Buckles (1971: type 22, p.127). This point is also similar to types W4 and W32 from Danger Cave.

Cultural Affiliation: by comparison to similar points found elsewhere, this type is probably of Archaic origin.

Side notched points: Type 5i.

Description: large (over 3.5 cm. long) point with parallel straight edges. It is side notched near the base and has a convex base (Fig.66).

Number of specimens: 1.

Material: chalcedony.

Measurements: the tip is missing from this point, but we estimate total length to have been about 4-5 cm. Maximum width is 1.9 cm.

Cross section: bi-convex.

Source: isolated find on tract 8 (T10s, R21e, Sec. 26).

Comparisons: this is a Bitterroot Side Notched Point as described in Hogup and Danger Caves. At Hogup Cave this type was most frequently found in levels dating from about 5300 - 1250 B.C.

Cultural affiliation: Archaic.

Projectile Point Fragments. A total of 32 projectile point fragments were collected which were too fragmentary to classify with certainty.

Lithic Identification. Of the total of 99 complete or fragmentary projectile points, ten were obsidian, 15 quartzite, and 74 chalcedony.

Bifaces

This category of artifacts includes all bifacially flaked stone with the exception of projectile points and drills, which are discussed separately. The vast majority of biface specimens collected are too fragmentary to allow determination of their original shape. The only classification possible was a determination of whether they were flaked over the entire surface or only along the tool margins. In addition, the type of stone was determined for each fragment.

A total of 150 bifaces were collected from the study areas; 132 are fragments and 18 are complete. Of the 150, 99 (66%) are flaked over the entire surface, and 51 (34%) were not. Thirteen of the bifaces are obsidian (8.7%), 18 are quartzite (12%), 118 are chalcedony (79%), and one is of a siltstone material (.7%).

The number of complete bifaces was so small, and their degree of variation so great, that no attempt was made to classify these tools. Ten of the bifaces are pictured in figures 67 and 68. Table 1 details measurement, provenience, and association information for the 10

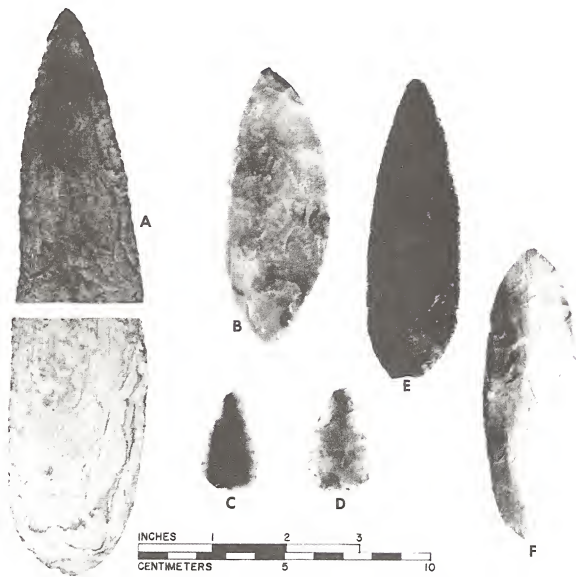


Figure 67. Complete bifaces B1 through B6. Specimen A is B1, B is B2, C is B3, D is B4, E is B5, and F is B6.

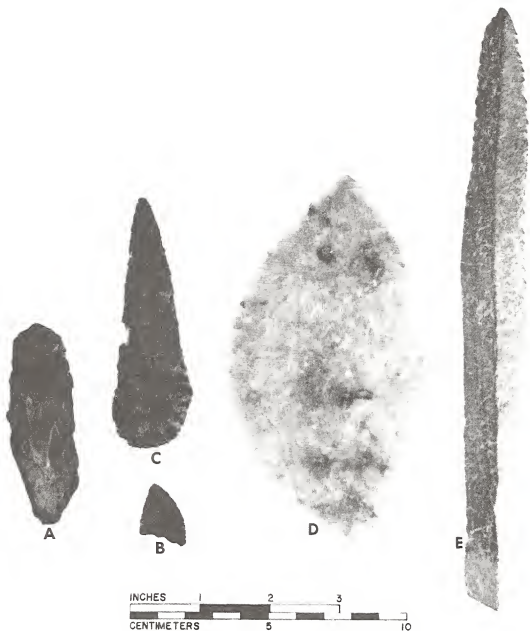


Figure 68. Complete bifaces B7 through B10. Specimen A is B7, B is B8, C is B9, and D is B10. Specimen E is a unique artifact found at site 5RB451.

Table 1. Measurements, provenience, and associations for the 18 complete bifaces found during the oil shale tract surveys. Specimens B1 through B10 are pictured in Figures 67 and 68.

Biface Number	Toolstone Type	Length	Maximum Width	Maximum Thickness	Provenience	Associated Diagnostic Artifacts
B1	Chalcedony	18.8cm	4.8cm	1.1cm	42UN501	type 1 and type 5b projectile points same as B1
B2	Chalcedony	9.7cm	3.8cm	1.0cm	42UN501	None
B3	Chalcedony	3.5cm	2.0cm	0.4cm	Isolated find - tract 8	None
B4	Chalcedony	3.7cm	2.2cm	0.4cm	Isolated find - tract 8	None
B5	Chalcedony	10.3cm	3.3cm	0.7cm	5RB385	biface mid-section with parallel flaking
B6	Chalcedony	10.0cm	3.5cm	0.7cm	5RB422	None
B7	Chalcedony	7.3cm	2.6cm	0.9cm	5RB427	None
B8	Chalcedony	2.5cm	1.8cm	0.4cm	5RB429	type 5b proj. point, Turner Gray-Emery Variety potsherds
B9	Chalcedony	9.1cm	3.0cm	0.9cm	5RB441	type 5b proj. point
B10	Chalcedony	13.2cm	7.8cm	0.9cm	5RB445	None
B11	Quartzite	6.0cm	1.9cm	1.5cm	5RB320	type 5f proj. point
B12	Chalcedony	3.8cm	2.4cm	1.2cm	5RB43	types 1,4a,4d,5a, and 5b projectile points
B13	Chalcedony	3.7cm	1.9cm	0.4cm	42UN500	None
B14	Chalcedony	3.9cm	2.4cm	0.6cm	42UN501	types 1 and 5b projectile points
B15	Chalcedony	3.0cm	2.2cm	0.4cm	5RB418	types 1,2, and 5b projectile points, Shoshoni potsherds
B16	Chalcedony	3.2cm	2.0cm	0.5cm	42UN501	same as B14
B17	Chalcedony	1.8cm	1.1cm	0.4cm	5RB404	None
B18	Chalcedony	2.5cm	1.2cm	0.3cm	5RB385	same as B5

pictured bifaces and the eight not pictured.

Biface B1 is a long blade which could be classified as a knife. There is little to no wear on the long cutting edges. The base is ground or worn noticeably, leading us to speculate this tool may have been hafted.

B2 is a shorter blade which shows wear on most of the cutting edge. Differential concentration of the wear marks indicates that this tool might have served as a scraper.

B3 and B4 were found together as an isolated find, and appear to be preforms for projectile points. Their edges show slight signs of wear however, so they might have been used as cutting tools.

B5 is a blade which exhibits parallel flaking and which we believe is of Paleo-Indian origin. A parallel flaked biface midsection was found at 5RB385 along with B5. Small retouch flakes have been removed from the edge of B5, and these overlap the larger parallel flakes. The blade shows no sign of wear. It was in two pieces when discovered.

B6 is a blade which shows definite wear on both edges and was most likely used as a cutting tool.

B7 is thick in relation to its length. It does not exhibit major edge wear, but tiny flakes have been removed at scattered spots along the edge indicating that it was utilized to some extent.

B8 is a relatively small asymmetrical biface which is "sharkstooth" shaped. If it were not so asymmetrical, it might have been classified as a projectile point. The edges show no wear.

B9 was broken in two pieces when found. It has moderate wear on both edges and was probably used as a cutting tool.

B10 is a large broad biface which has only slight wear on the edges. One edge appears to have been more heavily used than the other. The

The nonconformity along one edge seems to be a spot where breakage and resharping occurred. We don't feel it was part of the functional design of the tool.

Eight complete bifaces are not pictured in the figures. Bifaces B11 through B18 range in length from 1.8 to 6.0 cm., in maximum width from 1.1 to 2.4 cm., and in maximum thickness from 0.3 to 1.5 cm. Their shapes were variable; no two looking alike.

Drills

One complete and six fragmentary drills were recovered during the project. One is quartzite and 5 are chalcedony. Three of the specimens are fragments of drill bits and are of no analytical use.

The other four specimens are pictured in Figure 69. The drill labeled A is complete. It is 4.2 cm. long, 2.7 cm. wide at maximum, and 0.6 cm. thick at maximum. It was found at site 5RB377, a site where no other diagnostic artifacts were recovered.

Specimen B is broken at both the tip and basal ends. It may have been a large biface whose tip was converted to a drill. It was recovered from site 5RB451. This site also yielded Turner Gray-Emerly Variety pottery and one sherd of McElmo Black-on-White pottery.

Specimen C also is broken at both tip and base. It was found at 5RB432 along with Turner Gray-Emerly Variety potsherds and projectile point types 4a, 5a, and 5c.

The tip of drill D is complete, but the base has been broken. It is from site 42UN501 and was associated with types 1 and 5b projectile points.

Perforator

One biface fragment exhibited a thin narrowed tip. This artifact

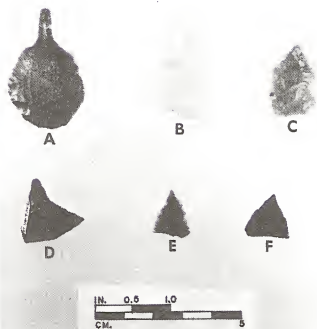


Figure 69. Drills, perforator, and graver. Specimens A,B,C, and D are drills from sites 5RB377, 5RB451, 5RB432, and 42UN501 respectively. Specimen E is a perforator found at site 5RB400. Specimen F is a graver from 5RB377.

is pictured in Figure 69 and probably served as a perforator. It was found at 5RB400 along with one type 4f projectile point.

Graver

One artifact was found which we believe to be a graver (Fig.69). It is a small black chalcedony fragment which has been retouched near the tip. This specimen was found on site 5RB377 along with drill A.

Scrapers

A total of 63 scrapers or scraper fragments were found during the survey. Of these, five are obsidian, four quartzite, 53 chalcedony, and one bottle glass. Figures 70 and 71 illustrate a representative sample of the types of scrapers found. Most of the scrapers are fragmentary. Only two would be considered spokeshaves, one of which was made from a piece of bottle glass

Choppers

Four chopping tools were collected during the survey. One was a large cobble (8.5 cm. long) which had a large part of the cortex still present. It had been battered at both ends and was found at 5RB398.

The second chopper, from 5RB411, is a river cobble which has been used for battering along several edges. It is about 9 cm. long at maximum.

The other two choppers are smaller, 5.5 cm. and 5.0 cm. long, and consisted of flat pieces of chalcedony which have been battered around most of their circumferences. They may have served as hammerstones for flint knapping.

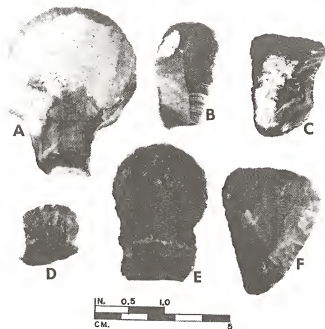


Figure 70. Representative sample of scrapers found during the surveys. Origins: A - 5RB144, B - 5RB443, C - 5RB442, D - 42UN509, E - 5RB421, F - 5RB18.

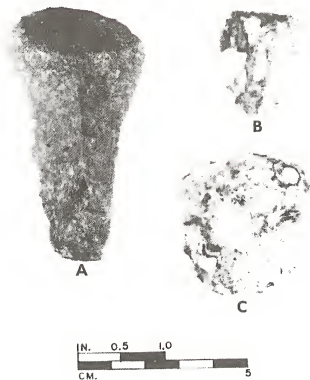


Figure 71. Sample of scrapers found during the surveys. Origins: A - 5RB445, B and C - 5RB451.

Cores

Nineteen cores were collected, one siltstone, six quartzite, and 12 chalcedony.

Unique Artifact

At site 5RB451, a long thin stone implement was found lying next to a half buried metate. This item (Fig.68) appears to be flaked along two edges, giving a serrated appearance. It is 21.5 cm. long, 2.5 cm. wide at maximum, and 1.3 cm. thick at maximum. The material is unusual. It appears to be a consolidated crystalline material, intermediary between sandstone and quartzite. There is disagreement among the authors as to whether or not this is indeed an artifact, but it is pictured and described for the sake of completeness.

Utilized Flakes

Fifty-one utilized flakes were recovered. Two are obsidian, four quartzite, and 45 chalcedony.

Waste Flakes

A total of 1,747 waste flakes were collected. Of that total, 82 (4.7%) are obsidian, 497 (28.4%) are quartzite, 1167 (66.8%) are chalcedony, and 1 (.06%) is quartz. These percentages may not accurately reflect tool stone material use in the area, however, since three sites, 5RB44, 5RB43, and 5RB319, contributed 45% of the total flakes. These sites were discovered during a period when we were collecting all of the flakes on a site, not just a sample. This accounts for the variance.

When these three sites are eliminated from the calculations, the

the percentages become: obsidian 6.1%, quartzite 12.3%, chalcedony 81.5% and quartz 0.1%. We feel these percentages more accurately reflect the raw material use on the oil shale tracts.

In comparing the percentages of tool stone types as determined from waste flakes, we also separated those found on the Utah tracts from those found on the six Piceance Basin tracts. Again, waste flakes from 5RB43, 5RB44, and 5RB319 were excluded from all calculations. The total number of waste flakes from the Utah tracts was 146. Of those, 16 (10.9%) are obsidian, 8 (5.4%) are quartzite, and 123 (83.7%) are chalcedony. On the Colorado tracts, a total of 816 waste flakes was obtained. Of these, 43 (5.3%) are obsidian, 110 (13.5%) are quartzite, 662 (81.1%) are chalcedony, and 1 (0.1%) is quartz.

Assuming we obtained an adequate sample of the waste flakes, it may be concluded that chalcedony, as would be expected, is the most popular tool stone in both Utah and Colorado. Obsidian appeared more than twice as frequently on the Utah tracts than in Colorado, and quartzite appeared more than twice as often on the Colorado Tracts than on those in Utah.

An objective verification of the importance of the differences in occurrence of obsidian and quartzite as raw materials for chipped stone tools can be obtained with the application of the Chi-square test (see Table 2).

Table 2. Contingency distribution of obsidian and quartzite debitage from Utah and Colorado tracts.

	Utah	Colorado	Total
Obsidian	16(8.00)	43(51.00)	59
Quartzite	8(16.00)	110(102.00)	118
Total	24	153	177

$$\chi^2 = 13.88, \text{ fe in parentheses}$$

The value for χ^2 is much greater than that required for rejection of H_0 at the 0.05 level. We feel quite confident in stipulating that the disparities in distribution of obsidian and quartzite between the Utah and Colorado tracts is the result of the systematic selection for the different materials by their aboriginal inhabitants. It seems likely that the systematic selection is based on differential access to suitable sources of the two material types. However, determination of the obsidian sources exploited by the early inhabitants of the tracts will have to await determination of the trace element content of the debitage and comparison with known prehistoric obsidian sources.

Ground Stone

A total of 46 ground stone fragments were located during the surveys. Of the total, 27 are manos or mano fragments, and 19 are metate fragments.

Manos

Twenty-seven of the manos are generally oblong in shape. One is circular. Eight manos have only one grinding surface (unifacial), 17 have two grinding surfaces (bifacial), and are too fragmentary for a determination to be made. The circular mano is unifacial.

All eight of the unifacial manos are made from sandstone. Sixteen of the bifacial manos are sandstone and one is quartzite. All three of the indeterminate manos are sandstone.

The longest mano, a broken specimen, is over 17 cm. long, 9 cm. wide, and 5.8 cm. thick. It was found on 5RB391. The smallest is 6.5 cm. wide, 8.9 cm. long, and 4.6 cm. thick at maximum.

Manos were found at the following sites: 5RB43 (5), 5RB319, 5RB381, 5RB391, 5RB411, 5RB418 (2), 5RB427, 5RB433, 5RB439 (2), 5RB451 (4), 42UN496, 42UN500 (2), and 42UN501. Four manos were also discovered as isolated finds in Colorado, while only one was found in Utah.

The unbroken manos are shown in Figures 72, 73, 74, and 75. Nine of the manos exhibited deliberate pecking of the grinding surface.

One of the manos from 5RB451 has two grooves worn into each elongated edge (Fig. 75). The grooves are perpendicular to the grinding surfaces and slightly offset from each other. They give the impression the mano was hafted, but this obviously was not likely.

A large piece of sandstone was found at 5RB413 which appears to have been ground on two surfaces. The specimen is blocky, large, and

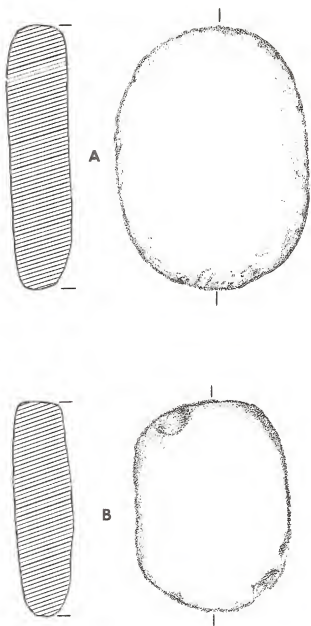


Figure 72. Manos. Specimen A is bifacially ground and was found at site 5RB451 on tract 1. Specimen B is unifacially ground and is an isolated find from tract 6. Both are one half actual size.

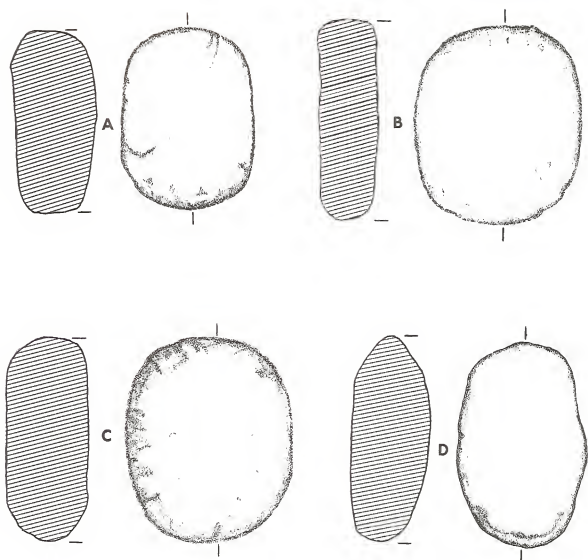


Figure 73. Manos. Specimen A is an isolated find from tract 7. It is unifacially ground. Specimen B is unifacially ground and is an isolated find from tract 2. C is a bifacially ground mano recovered at site.5RB418 on tract 6. Mano D is unifacially ground and was found at site 42UN500 on tract 7 in Utah. All are one half actual size.

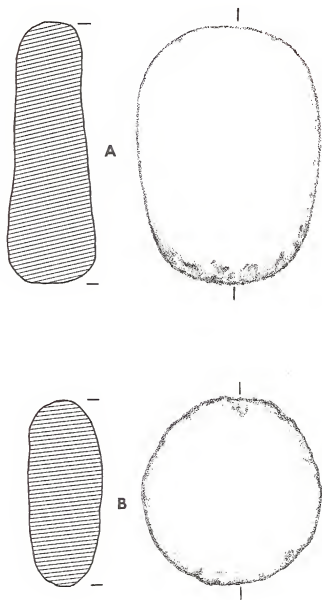


Figure 74. Manos. Specimen A is a bifacially ground mano from site 5RB433 on tract 1. Specimen B is unifacially ground and was found at site 42UN496 on tract 7. One half actual size.

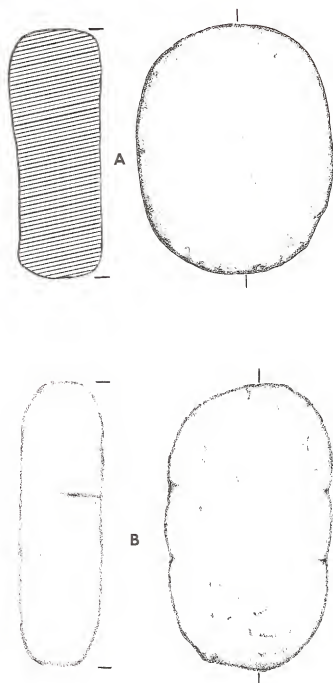


Figure 75. Manos from tract 1. Specimen A is an isolated find and B is from site 5RB451. A is unilaterally ground while B is ground on both faces. Mano B has two grooves ground into its sides. One half actual size.

not typically mano-shaped, and we are not, at present, considering it to be a mano.

Metates

Twelve metates are represented by the 19 fragments. Metates were present at the following sites: 5RB43, 5RB319, 5RB320, 5RB391, 5RB418 (3), 5RB430, 5RB451 (2), and 42UN501. One metate fragment was an isolated find on tract 5. Four of the more complete metates are pictured in Figures 76 and 77 .

All of the metates are made of sandstone and all are slab, as opposed to trough, metates. Very little indentation due to grinding was evident on any of them. All of the specimens were fragmentary to some extent. The largest of the slabs is about 50 cm. long; only 27 cm. of which was actual grinding surface. Thickness of the metates ranges from a minimum of 1.6 cm. to a maximum of 5.6 cm. While most are fragmentary, the most complete metates are ovate to nearly circular in shape.

The metate from 5RB320 appears to have a small amount of a brown substance still adhering to the grinding surface.

Polishing Stones

Four fragmentary and one complete specimen were recovered which are polished stones of varying size. The precise purpose of these artifacts is uncertain. Polished stones were found at: 5RB43 (2), 5RB385, 5RB435, and 42UN501. See Figures 78 and 79.

One large fragment measures 10.7 x 7.7 x 1.5 cm. (Fig. 79). This is a broken fragment of a larger stone. It is highly polished over the entire unbroken surface and appeared to have some lines etched into the

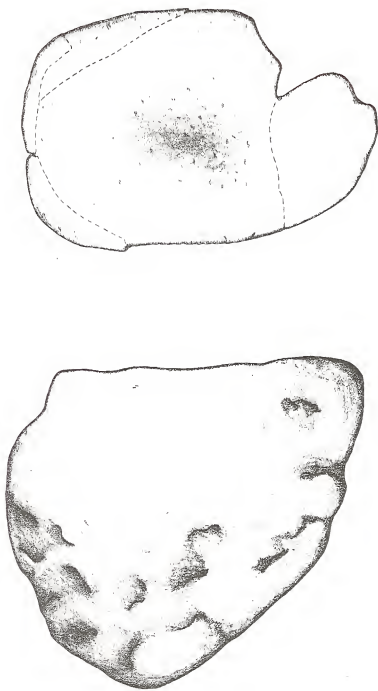


Figure 76. Metates. Specimen A was found at 5RB451 on tract 1. It has a shallow depression ground into the center and has been broken into five fragments. Dotted lines indicate the breaks. Specimen B was recovered from site 5RB418 and has a flat grinding surface. Both are one fifth actual size.

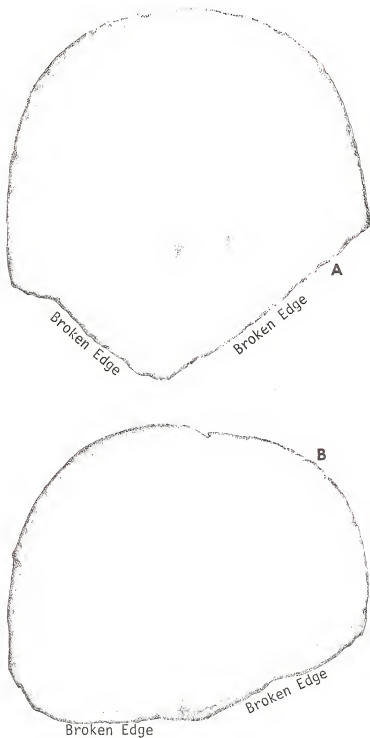


Figure 77. Metates. Specimen A was found at site 5RB451 on tract 1. One end of the stone has been broken off. The grinding surface is nearly flat. Specimen B is from site 5RB418 on tract 6. It is also broken at one end and has a nearly flat grinding surface. Both are two fifths actual size.

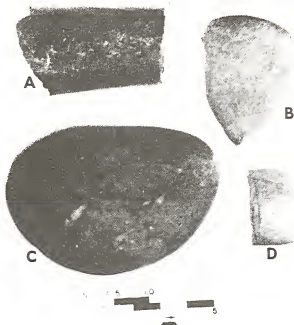


Figure 78. Four polished stones recovered from sites during the surveys. Origins: A - 5RB385, B - 42UN501, C - 5RB435, D - 5RB43.

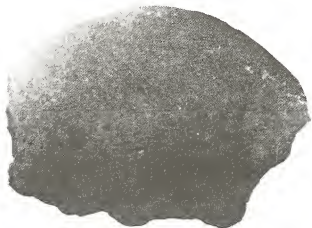


Figure 79. Polishing stone fragment found at site 5RB43 on tract 3.

polished surface. The lines have no apparant pattern, however, and may be natural. The only complete specimen is from 5RB435 and measured 7.8 x 5.5 x 3.1 cm. (Fig. 78, Specimen C).

The specimen from 42UN501 is flat, highly polished, and has some battering along one edge, as if it had been used as a hammerstone or battering tool (Fig. 78, Specimen B).

Other Artifacts

Beads

Beads were found at 5RB319, 5RB382, and 5RB443.

At 5RB319 a small metal bead was found during a Bureau of Mines survey in 1976. This artifact has been misplaced and is unavailable for description.

One bead, apparently made of shell, was recovered from 5RB382 (Fig. 80, Specimen A). It is oval in shape with a maximum diameter of 7 mm. and a minimum diameter of 6 mm. The bead is 3 mm. thick and has a hole through the center, which is 2 mm. in diameter. One end of the bead is fairly concave, while the other is slightly convex. The bead is white.

Eleven small glass "seed" beads were found at 5RB443, mostly in ant hills. The diameters of the 11 beads range from 2.4 mm. to 3.9 mm. with a mean of 3.25 mm. Three of the beads are dark blue, seven are light blue, and one is white. The beads are pictured in Figure 80, Specimens B through L. Quimby (1966) describes seed beads as being most abundant as trade goods during the "Late Historic Period", which he defines as lasting from 1760 - 1820. Aikens (1972), in discussing seed beads from Nevada, states that beads in the plains area, similar to those from 5RB443, date later than 1815.

Tin Cans

Tin cans were collected at two sites, 5RB399 and 42UN500. Two cans were collected from a trash heap at 5RB399, an historic cabin site, in hopes of dating the occupation of the cabin through analysis of the type of can. One of the cans was large, 18 cm. high and 15.5 cm.

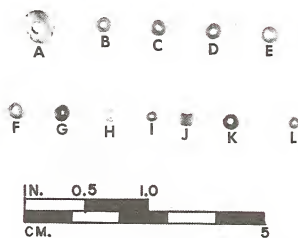


Figure 80. Beads. Specimen A is a shell bead found at site 5RB382. Specimens B through L are glass "seed beads" from site 5RB443.

in diameter. It had the word Sanitary imprinted into the bottom and appeared to be recent. The second can was smaller (11 cm. high, 7.5 cm. in diameter) and appeared to be a milk or cream can. Both cans had folded lap seams and were manufactured after about 1910.

Four cans were collected from 42UN500. Two of the cans are cylindrical, one of which was cut in half. The cut can is 7.5 cm. in diameter. The uncut can is 10 cm. high and about 7 cm. in diameter. The third can is rectangular in shape and measures about 9 cm. x 4.5 cm. in cross section. The height was not measurable because the can was cut at one end. It appears to be a can for powdered chocolate milk mix, similar to those in use today. The fourth can is a tobacco can. Rectangular in outline, it measures 11 cm. high, 8 cm. wide, and about 2.4 cm. thick. All of the cans had folded lap seams and were produced after about 1910. A hinged lid was still attached. We believe that these cans represent the remains of a shepherder's camp, used after A.D. 1910.

Nails

Nails were collected from three sites: 5RB399, 42UN498, and 42UN500. The two nails from 5RB399 were removed from logs used in a barn-like structure. They appear modern in every respect.

Three fragments of horseshoe nails were collected at 42UN498, a probable shepherders camp. These have no value for chronological determination.

One wire nail and one horseshoe nail were collected at 42UN500.

Metal Strips

At 5RB418, which we consider a probable Ute campsite occupied during

historic times, four thin metal strips were found. All four are quite thin, as if they had been cut from a tin can or other such thin metal item. One is rectangular, 9 cm. long x 2 cm. wide (Fig. 81). Two of the strips are generally triangular in shape, one measuring 3.1 x 3.1 cm. and the other 3.6 x 1.6 cm. Both of these triangular specimens are grayish in color, while the other two strips are brown. The fourth piece of metal is trapezoidally shaped. It is about 5.5 cm. long, 3.4 cm. wide at the widest end, and 2.3 cm. wide at the narrow end. Two holes have been punched in the metal near the wide end and the metal has been rolled over along the long edges. This artifact may have been used as a pendant.

Button

A mother-of-pearl button was recovered from 5RB390, a site with both historic and prehistoric components. The button (Fig. 81) is 1.1 cm. in diameter, 2.3 mm. thick, and has two small holes drilled through the center. One side of the button is flat and the other has a depression in the center in which the holes are located.

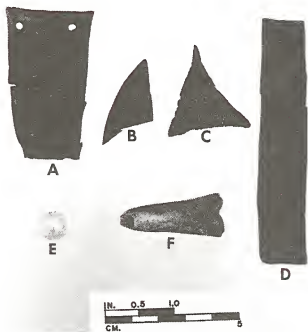


Figure 81. Historic artifacts and bone object. Specimens A through D are thin metal strips from site 5RB418. Specimen E is a mother of pearl button found at 5RB390 and F is a shaped bone object recovered from site 5RB144.

Ceramics

Ceramics were found at 13 of the 110 sites recorded during the 1976 study and previous surveys of the in situ oil shale lease tract areas. The 13 sites are: 5RB144, 5RB319, 5RB398, 5RB401, 5RB410, 5RB418, 5RB425, 5RB429, 5RB432, 5RB435, 5RB451, 5RB525, and 5RB528. In addition, pottery from 5RB123, an excavated site located near Piceance Creek north of tract 1, is described here. All of the sites with ceramics are in the Piceance Basin of Colorado. No pottery was found during the surveys of the 3 Utah tracts.

The ceramics have been classified into 5 varieties: Shoshoni, Fremont (Turner Gray), Tusayan Corrugated, McElmo Black-on-White, and historic porcelain. The ceramic typology used here is based on Rudy (1953).

Shoshoni Ceramics

Sometimes called Shoshoni Ware, this pottery was produced in the Colorado-Utah region by both the Shoshoni and Ute Indians. Most Shoshonean ceramic analysis derives from work in the Shoshoni Basin, Wyoming (Mulloy 1954) and through direct ethnological analysis such as those of Lowie (1909 and 1924) and Steward (1940 and 1944). The ceramics described here were identified as Shoshoni through the aid of Coale (1963), Rudy (1953), and Breternitz (1977). Shoshoni ceramics were found at 6 sites, and are described below.

Site 5RB398: Recovered Material: 7 sherds

Construction: probably coiled and scraped

Core Color: ranges from brown to greyish-black

Texture of Core: medium to coarse

Temper: crushed rock, probably granitic, and coarse angular sand or grit

5RB398 (continued)

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - smooth to very rough

interior - relatively smooth

striations and polish are absent

Surface Color: exterior - light brown

interior - reddish brown

Decorative Technique: thumb impressed, impressions vertically placed in horizontal rows

Reconstruction: not possible

Site 5RB410: Recovered Material: 41 sherds

Construction: probably coiled and scraped

Core Color: ranges from light grey to greyish-black

Texture of Core: medium

Temper: crushed sandstone with micaceous inclusions

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - very rough

interior - poorly smoothed

striations and polishing absent

Surface Color: exterior - light brown

interior - greyish-brown, some evidence of fire clouds

Decorative Technique: partial evidence of thumb impressions, but unclear due to brittle condition

Reconstruction: not possible

Note: 4 concentrations of potsherds were found at site 5RB418. Each concentration is discussed separately below.

Site 5RB418.4: Recovered Material: 21 sherds

Construction: probably coiled and scraped

Core Color: greyish-brown

Texture of Core: fine to medium

Temper: crushed sandstone and grit

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - fine to medium

interior - fine

striations and polishing absent

Surface Color: exterior - reddish-orange, fire clouds evident

interior - orange to greyish-brown to black,
fire clouds evident

Decorative Technique: thumb impressed, impressions
vertically placed in horizontal rows

Reconstruction: vessel with pointed base

Site 5RB418.5: Recovered Material: 56 sherds (see Fig. 82)

Construction: probably coiled and scraped

Core Color: greyish-brown

Texture of Core: medium to rough

Temper: crushed sandstone and grit with quartzitic pebble
inclusions

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - smooth (highly polished, especially on rim sherd)

interior: fairly smooth with undulating
surface

striations absent

Surface Color: exterior - orange

interior - brown with black splotches

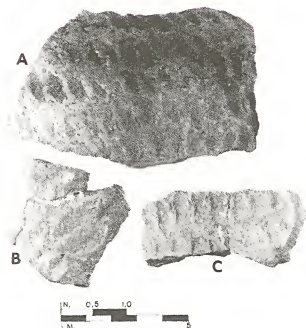


Figure 82. Shoshoni potsherds from pottery concentration 418.5 at site 5RB418. Specimens B and C have been partially reconstructed.

5RB418.5 (continued)

Decorative Technique: thumbnail impressed, impressions vertically placed in horizontal rows

Reconstruction: not possible

Site 5RB418.6: Recovered Material: 22 sherds (see Fig. 83)

Construction: probably coiled and scraped

Core Color: light brown to grey

Texture of Core: medium to rough

Temper: crushed sandstone and grit with quartzitic pebble inclusions

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - medium to smooth

interior - smooth

striations and polishing absent

Surface Color: exterior - orange to dark grey with fire clouds present

interior - light brown to grey to black

Decorative Technique: thumb impressed

Reconstruction: not possible

Site 5RB418.15: Recovered Material: 36 sherds (see Fig. 84)

Construction: probably coiled and scraped

Core Color: light brown to grey

Texture of Core: medium

Temper: crushed granitic rock, sand and grit with quartzitic pebble inclusions

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - poorly smoothed

interior - fairly smooth

polishing and striations absent

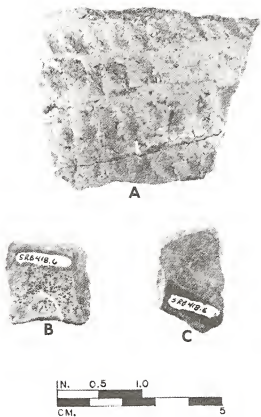


Figure 83. Shoshoni potsherds from pottery concentration 418.6 at site 5RB418. Specimen A has been partially reconstructed.

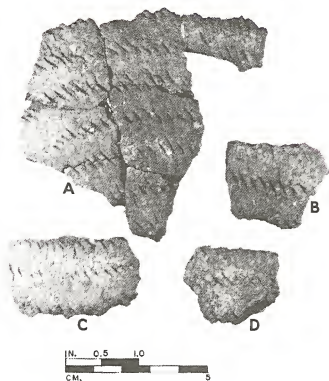


Figure 84. Shoshoni potsherds. These specimens are from pottery concentration 418.15 at site 5RB418. Specimen A has been partially reconstructed.

Site 5RB418.15 (continued)

Surface Color: exterior - light brown

interior - black

Decorative Technique: incised lines, probably with thumbnail

Reconstruction: not possible

Site 5RB425: Recovered Material: 45 sherds

Construction: probably coiled and scraped

Core Color: greyish-brown

Texture of Core: coarse

Temper: crushed sandstone or grit with some quartzitic inclusions

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - medium to rough

interior - poorly smoothed to medium with unundulating surface

striations and polish absent

Surface Color: exterior - grey to black

interior - orange to reddish-brown, some fire-clouding evident

Decorative Technique: thumb impressed

Reconstruction: not possible

Site 5RB319: Recovered Material: 7 sherds

Construction: probably coiled and scraped

Core Color: greyish-brown to black

Texture of Core: very coarse

Temper: crushed granitic rock with quartzitic pebble inclusions

Firing Technique: oxidizing atmosphere

Surface Finish: exterior - medium to rough

Site 5RB319 (continued)

Surface Finish: interior - medium to rough

striations and polishing absent

Surface Color: exterior - orange to greyish-black(due to
fire clouds)

interior - grey to black

Decorative Technique: thumb impressed

Reconstruction: not possible

Site 5RB525: Recovered Material: 11 sherds

This pottery is described by Olson et al.(1975:51) as being
"Shoshonean-like". The site is referred to as Colo.H:3:12
in their report.

Fremont Ceramics

The Fremont horticulturalists were located in south central Utah along the Fremont and Middle Rivers and along tributaries of the Colorado River (Morss 1931: Plate 1). Extensions have reached northeastern Utah, the Colorado Plateau country of eastern Utah, and the Dinosaur National Monument area in northeastern Colorado (Aikens 1966, Ambler 1966, and Breternitz 1970). The ceramics described here were identified through the aid of Ambler (1966), Breternitz (1977), Gunnerson (1959), Rudy (1953), and Wormington (1955). Two types of Fremont pottery were identified, Turner Gray-Cisco Variety and Turner Gray-Emery Variety. The Cisco Variety is also known as Turner Gray Variety I and the Emery Variety is sometimes referred to as Turner Gray Variety II. Fremont ceramics were found at 7 sites and are described below.

Site 5RB401: Recovered Material: 45 sherds

Site 5RB401 (continued)

Construction: probably coiled and scraped

Core Color: grey to black

Texture of Core: fine to medium

Temper: crushed igneous rock with micaceous inclusions,
quartzitic pebbles evident

Firing Technique: reducing atmosphere

Surface Finish: exterior - medium

interior - medium

polish absent, coils are not visible

Surface Color: exterior - brown to grey

interior - brown to grey

Decorative Technique: none

Reconstruction: not possible

Fremont Type: Turner Gray-Emery Variety, temper lacks calcite and does not react to dilute HCL

Note: 2 concentrations of potsherds were found at 5RB429. They are discussed separately here.

Site 5RB429.8: Recovered Material: 29 sherds

Construction: probably coiled and scraped

Core Color: grey to greyish-black

Texture of Core: fine to medium

Temper: crushed igneous rock and sandstone with quartzitic pebble inclusions

Firing Technique: reducing atmosphere

Surface Finish: exterior - medium to rough

interior - medium to rough

polish absent, coils are not visible

Site 5RB429.8 (continued)

Surface Color: exterior - buff with grey splotching
interior - buff

Decorative Technique: none

Reconstruction: not possible

Fremont Type: Turner Gray-Emery Variety, temper lacks calcite and does not react with dilute HCL

Site 5RB429.10: Recovered Material: 21 sherds

Construction: probably coiled and scraped

Core Color: grey to black

Texture of Core: medium to fine

Temper: crushed igneous rock and sandstone with quartzitic pebble inclusions

Firing Technique: reducing atmosphere

Surface Finish: exterior - poorly smoothed, undulating surface

interior - smooth with roughness in spots
polish absent, coils are not visible

Surface Color: exterior - greyish-brown
interior - light grey

Decorative Technique: none

Reconstruction: not possible

Fremont Type: Turner Gray-Emery Variety, temper lacks calcite and does not react with dilute HCL

Site 5RB432: Recovered Material: 22 sherds

Construction: probably coiled and scraped

Core Color: greyish black

Texture of Core: coarse

Site 5RB432 (continued)

Temper: crushed igneous rock and sandstone with micaceous
and quartzitic pebble inclusions

Firing Technique: reducing atmosphere

Surface Finish: exterior - smooth

interior - smooth

shows some polishing, coils are not visible

Surface Color: exterior - brownish-grey

interior - brownish-grey

Decorative Technique: none

Reconstruction: not possible

Fremont Type: Turner Gray-Emery Variety, temper lacks calcite
and does not react with dilute HCL

Site 5RB451: Recovered Material: 1 large sherd (see Fig. 85)

Construction: probably coiled and scraped

Core Color: grey to black

Texture of Core: medium to coarse

Temper: crushed igneous rock and sandstone with micaceous and
quartzitic inclusions

Firing Technique: reducing atmosphere

Surface Finish: exterior - smooth

interior - smooth

has a somewhat undulating surface as well as
being slightly polished, coils are not visible

Surface Color: exterior - light brown to grey

interior - black

Decorative Technique: none

Reconstruction: not possible

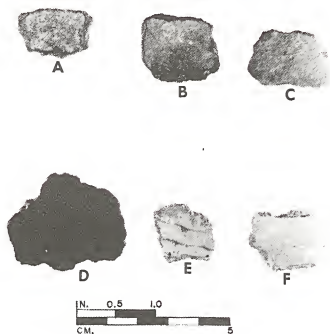


Figure 85. Potsherds. Specimens A, B, and C are Fremont (Turner Gray-Cisco Variety) potsherds from site 5RB123. Specimen D is a Fremont (Turner Gray - Emery Variety) sherd from site 5RB451. Sherds E and F are Tusayan Corrugated from site 5RB435.

Site 5RB451 (continued)

Fremont Type: Turner Gray-Emery Variety, temper lacks calcite and does not react with dilute HCL

Site 5RB144: Recovered Material: 31 sherds

Construction: probably coiled and scraped

Core Color: grey to black

Texture of Core: medium to coarse

Temper: crushed igneous rock with micaceous and quartzitic inclusions

Firing Technique: reducing atmosphere

Surface Finish: exterior - smooth

interior - smooth

polish absent, coils are not visible

Surface Color: exterior - grey to sandy brown

interior - grey with brown and black splotches

Decorative Technique: none

Reconstruction: not possible

Fremont Type: Turner Gray-Emery Variety, temper lacks calcite and does not react with dilute HCL

Site 5RB123: An excavated site located north of the oil shale lease tracts in the Piceance Basin of Colorado.

Recovered Material: 8 sherds (see Fig. 85)

Construction: probably coiled and scraped

Core Color: grey to black

Texture of Core: medium to coarse

Temper: crushed calcite with quartzitic and sandstone inclusions

Firing Technique: reducing atmosphere

Surface Finish: exterior - smooth

Site 5RB123 (continued)

Surface Finish: interior - smooth

shows some polish, coils are not visible

Surface Color: exterior - light brown to grey

interior - grey

Decorative Technique: none

Reconstruction: not possible

Fremont Type: Turner Gray-Cisco Variety, reacts to dilute HCL

Site 5RB528: Recovered Material: 9 sherds

Pottery from this site is described by Olson *et al.* (1975: 84) as being Turner Gray II, which under different terminology would be Turner Gray-Emery Variety. The site is referred to as Colo. H:3:15 in their report.

Tusayan Corrugated

Tusayan Corrugated ceramics are found in south central and eastern Utah, into northern Arizona along the Colorado River and its tributaries, and occasionally in northwestern New Mexico and southwestern Colorado. The type was produced from about 950 to 1275 A.D. by Pueblo II and Pueblo III peoples. It is discussed by Colton (1952 and 1955), Bretternitz (1966), and C. Jennings (1976). This type was found at 1 site and is described below.

Site 5RB435: Recovered Material: 7 sherds (see Fig. 85)

Construction: coiled and molded

Core Color: light grey

Texture of Core: medium to fine

Temper: crushed sandstone, quartz grains

Site 5RB435 (continued)

Firing Technique: reducing atmosphere
 Surface Finish: exterior - poorly smoothed
 interior - smooth
 polish absent
 Surface Color: exterior:- grey to buff
 interior - grey
 Decorative Technique: corrugation
 Reconstruction: not possible

McElmo Black-on-White

McElmo Black-on-White pottery is found in southeastern Utah along the San Juan River and its tributaries and in the Abajo mountains. In Arizona, the McElmo phase is found in the northeast, especially along the Chinle Wash. In northwestern New Mexico, McElmo occurs along the LaPlata, Animas, and Chaco rivers and their tributaries. The type is common in the Mesa Verde area of southwestern Colorado. It was produced from about 1075 to 1275 A.D. during the Pueblo III period and represents a transitional phase between Mancos and Mesa Verde Black-on-White styles. It is discussed by Breternitz (1966 and 1974) and Abel (1955). Pottery of this type was found at one site and is described below.

Site 5RB451: Recovered Material: 1 rim sherd (see Fig. 86)

Construction: coiled and scraped
 Core Color: light grey
 Texture of Core: fine
 Temper: crushed sandstone, igneous and metamorphic rock
 Firing Technique: reducing atmosphere

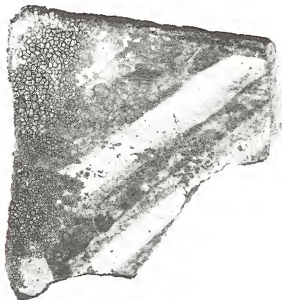


Figure 86. McElmo Black on White potsherd found at site 5RB451 on tract 1.

Site 5RB451 (continued)

Surface Finish: exterior - highly polished, very smooth
interior - highly polished, very smooth

Decorative Technique: painted (black on white) with organic mineral paint, probably brushed on, evidence of color fading, rim ticking is apparent

Reconstruction: probably a deep bowl

Historic Porcelain

Fragments of an historic porcelain object were found at one site. Some fragments exhibited a distinctive color pattern known as "flown blue" (also "flo" or "flow" blue), which Kovel and Kovel (1974:202) describe as being produced in England from about 1830 to 1900. Hughes (1967:32) places the first date of manufacture at about 1820 and states that this style was exported to the United States in great quantities.

Site 5RB418: Recovered Material: 8 fragments

Core Color: buff

Texture of Core: smooth but somewhat granular

Surface Finish: smooth and highly polished

Surface Color: white with blue trim

Decorative Technique: flown blue pattern

Reconstruction: probably a plate

Bone

Fragments of burned bone were found at 13 sites: 5RB18, 5RB43, 5RB44, 5RB73, 5RB95, 5RB319, 5RB391, 5RB418, 5RB425, 5RB420, 5RB451, 42UN497, and 42UN500. In some cases, the bone was found in association with obvious firepits, while in others, firepit areas were not well defined.

Bone specimens from four sites were complete enough for tentative identification of the species of animal. Identification was done by Dr. Gordon Solomon, Department of Anatomy, Colorado State University. One bone fragment from 5RB18 was part of the left tibial tarsal of a large mammal, probably a mule deer. A bone from a firepit at 5RB391 was the distal end of the left metacarpal from an elk. A small bone fragment from 5RB429 was identified as part of the skull of a relatively small mammal such as a raccoon or badger. Two burned bones from 42UN497 were tentatively identified as a humerus and cervical vertebrae from a small ruminant, probably a young domestic cow or calf buffalo. The antiquity of this material is not great, as some of the bones had been cut with a saw.

The single bone fragment which appeared to have been modified for human use was found under a rock ledge at 5RB144. This artifact, pictured in Figure 81, is conically shaped, 3.9 cm. long and 1.7 cm. wide at the large end. It is hollow and a hole was drilled near the narrow end, perhaps to allow a cord to be passed through. Part of an articular surface remains on the narrow tip of the object, but the remainder of the surface has been worn or polished smooth.

This artifact bears a rather remarkable resemblance to objects recovered from Danger Cave (J. Jennings 1957:200) which were described

as bone tinklers. Jennings postulated that they might be used as sucking tubes or as jingles. Since Turner Gray-Emery Variety pottery was found at 5RB144, it might be inferred that this object was produced by Fremont peoples, though it seems more likely to be of lesser antiquity.

STRUCTURES

Historic Structures

Two historic cabins, sites 5RB399 and 5RB438, were recorded. One cabin, 5RB399, was constructed over a hole dug in the ground, and was collapsed to a large extent. It was evident, however, that the walls had consisted of large logs laid on top of one another and in some cases nailed together. A cast iron stove was present in the cabin and partially buried by fill dirt. A barn-like structure was present a few meters away from the cabin, and consisted of poles sunk in the ground with cross beams nailed and wired to them. A roof made of sagebrush branches was collapsed when we visited the site. Judging from the style of nails used and tin cans present in a trash heap, we believe that this cabin site is not particularly old; certainly later than 1910 (Fig. 87).

The other cabin, 5RB438, was standing, and in a good state of preservation (Fig. 88). It was partially dug into a southeast facing slope. The walls are of sandstone slabs with mud chinking, and the doorjam is wood. The roof consisted of wooden beams overlaid with dirt. Nails used in the construction are round-bodied. The floor is about 0.5 m. lower than ground level.

Prehistoric Structures

Partially standing structures of apparent prehistoric origin were discovered at 5RB144, 5RB418, 5RB411, and 5RB391. At 5RB144 logs were found leaning against two trees, giving the appearance of having once been wickiup structures. At the same site, a small portion of a low



Figure 87. View of the historic structure foundation at 5RB399, located on tract 4. Cast iron stove (arrow) was half-buried in the fill.



Figure 88. Stone and log structure which comprises site 5RB438. This site is located on tract 1, west of Piceance Creek.

rock and log wall was present, as well as some branches laid horizontally between trees to form a small corral-like structure. Additionally, some large tree trunks at 5RB144 had been arranged end to end, giving the impression that they served as a barrier of some kind.

The standing remains of a wickiup were found at 5RB418 (Fig. 44), along with very incomplete but possible remains of another. (Fig.43). A ground stone fragment was found in the standing wickiup. Since post-white contact artifacts were recovered from 5RB418, we believe the structure was erected by Utes.

At 5RB411, a large rock and log circle was present on a precipice overlooking Black Sulphur Gulch (Fig. 22). It measured 9.4 m. E. W., 11.6 m. N. S. and had walls which rose 85 cm. above the floor at the highest point. The most obvious use for this structure would have been as a lookout post. It provides a 360° view.

No artifacts were associated with the structure. The circle had been disturbed by an aerial photo marker which was placed at its south end. Stones were removed from the circle to allow the marker to be placed. Also found at 5RB411 was a small tipi structure (Fig. 23) which was 1 m. high at the apex and about 2.7 m. in diameter. It was constructed of four limbs, three forked and one straight. No artifacts were associated with this structure and its function is uncertain. It is possible this structure was erected in recent times.

At 5RB391, the largely collapsed remains of what was probably a wickiup structure was recovered (Fig. 34). Two logs were still leaning against a branch of a living tree, but many other logs were lying on the ground in the immediate area. Probable firepits were present on two sides of the structure and chipped and ground stone tools were

collected nearby. Shredded juniper bark was lying among the fallen logs and might have served as matting at one time.

Possible collapsed wickiup structures were observed at 5RB422 and 5RB427. However, no artifacts were directly associated with them, and their designation as structures is conjectural at this point.

Other Structures

Structures of indeterminate origin were recorded at five sites. These might have been constructed by either white or Indian inhabitants of the area. At 5RB445, some dead trees had been arranged in lines resembling tall log fences. This was accomplished by leaning them against living trees and stacking them upon one another. Two small rectangular log arrangements were found at 42UN504 (Fig. 89). Each was at the base of a living tree and consisted simply of some short logs placed together in a block arrangement. One structure measured 1.4 m. N. S. x 1.6 m. E. W. The other measured 1.1 m. N. S. x 1.3 m. E. W. Both were about 30 cm. high at maximum. No artifacts were near the structures and their function is unknown. Some of the logs involved were cut with metal axes.

Site 42UN502 consisted entirely of a small rock fireplace-like structure (Fig. 90). Since none of the rocks which make up the structure appear fire-burned, it is doubtful that this structure was used as a fireplace. No artifacts were associated with the structure. It measured 1.4 m. wide, 1.1 m. from the front to back, and 70 cm. high.

Site 42UN507 consisted of a rock structure quite similar to the one just described (Fig. 55). In contrast to the other, it was filled with small rocks and other debris and some of the rocks in it were fire



Figure 89. One of two small rectangular log structures found at site 42UN504 on tract 9 in Utah. The north arrow in the photo is 38 cm long.



Figure 90. View of the small rock structure which comprised site 42UN502 on tract 7 in Utah.

blackened. This structure measured 90 cm. E. W., 120 cm. N. S., and 55 cm. high at the south end.

At 42UN508, a large rock U-shaped structure was constructed against a slope (Fig. 91). The structure measured 5.2 m. S.E.-N.W. x 4.7 m. N.E.-S.W. and was about 1 m. high at the highest point. No artifacts were associated with the structure. Our feeling is that it was built by shepherders in historic times.



Figure 91. View of the large, U-shaped rock structure which comprised site 42UN508 on tract 8 in Utah. A jeep road is located immediately behind the pictured crew member.

SUMMARY AND DISCUSSION

The primary purpose of this project was to determine the effects of oil shale development on the cultural resources located on 9 tracts of land, 6 in Colorado and 3 in Utah. Since little archaeological work had been done on the tracts previously, the first priority was the identification of tract cultural resources. To that end, we surveyed about 40% of each tract in the fall of 1976. Eighty-six previously unrecorded archaeological sites were located and described during our survey. The main contribution of this project is the discovery of the 86 sites and the recovery of information from them. In addition, the opportunity has been afforded for further work on the sites such as excavation or other intensive studies.

This study has also pointed out that tracts 2,7,8, and 9 have a significantly lower density of archaeological sites than tracts 1,3,4,5, and 6 and may be developed for oil shale with lower negative impact on cultural resources.

One of the more surprising findings of the survey was the discovery of Fremont Turner Gray pottery at 7 sites in the Piceance Basin of Colorado. Although Olson et al. (1975) found Turner Gray at 2 Piceance Basin sites in 1975, it was felt that it might be there as a result of trade. Now that additional sites have been found to contain Fremont pottery, however, we believe it can be said that Fremont peoples were using the Piceance Basin at least as a hunting and/or gathering area. The likelihood that maize horticulture was practiced in the Piceance Basin is slight due to unfavorable climatic conditions.

The frequency of occurrence of Fremont ceramic sites in northeastern Utah (Ambler 1966) and northwestern Colorado (Breternitz 1970) indicates

that the Fremont were expanding to the east, perhaps because of environmental pressures. One theory is that competition for resources in the Fremont area increased, causing a population and settlement shift from a basically horticultural society to a semi-nomadic and nomadic existence (Berry 1972 cited in Madsen 1975). Madsen (1975:81) states that the Shoshone expanded around 1000 AD, reaching Nevada and southwestern Utah by 1050-1250 AD and arriving in northern Utah by 1200-1300 AD. This time period coincides with Fremont expansion and lends credence to the theory of competition between the groups.

At site 5RB451 on tract 1, a Fremont potsherd was found along with a McElmo Black-on-White sherd. There is no positive evidence that the two sherds were brought to the site during the same time period, and 5RB451 may indeed be a multi-component site. If the two sherds were contemporaneous, however, they represent evidence of occupation by Fremont related peoples during the period from 1075-1275 AD, the time during which McElmo Black-on-White pottery was produced. It is important to note that the Fremont had in the past come into contact with the Anasazi of the Southwest and incorporated many Southwest decorative techniques into their own ceramic repertoire (Gunnerson 1960). Undoubtedly elaboration on ceramic styles and considerable trading took place. Therefore, the McElmo Black-on-White sherd may either have been brought in by re-settling Fremont groups or obtained through bartering with peoples to the south.

A wide range of projectile point types was collected during the surveys. Perhaps the most obvious feature of the projectile point array is that a majority of them are of recent age as opposed to the minority of older dart points. Possible implications of this are: 1) that the study

areas, especially the Piceance Basin, were used more intensively by aboriginal inhabitants in horticultural and post-horticultural times than in Archaic or Paleo-Indian times; 2) that earlier artifacts have been lost through erosional processes while more recently deposited ones have not had time to be washed away; or 3) that later artifacts are more commonly found in surface surveys since earlier types are more likely buried and await excavation. We feel that a combination of all 3 factors are in action in the area of our study.

One important contribution of this project is the discovery of probable Paleo-Indian evidence at site 5RB385 on tract 2. Excavation or other intensive study at this site may add to our knowledge of Paleo-Indian occupation of the area. Excavation efforts at several sites, especially 5RB429, 5RB451, 5RB418, and 42UN500 will likely yield additional important information.

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APPENDIX

Summary of Historic Ownership of Lands on
and Adjacent to the Oil Shale Lease Tracts

Compiled by:

Daryl J. Daugherty

TRACT BY TRACT SUMMARY OF HISTORIC OWNERSHIP OF LANDS ON AND ADJACENT
TO THE OIL SHALE LEASE TRACTS

The following narrative is a compilation of materials located in the records of the Office of the County Clerk and Recorder, Garfield County, Glenwood Springs, Colorado; the Office of the County Clerk and Recorder, Rio Blanco County, Meeker, Colorado; and the Office of the County Clerk and Recorder, Uintah County, Vernal, Utah. The survey provides an incomplete chain of title to various properties on and adjacent to the nine oil shale lease tracts. Lack of time and money prevented the compilation of complete chains of title and the research historian regarded such a procedure unnecessary and of dubious value for the purposes of this project. The survey of the records of the three counties enabled the researcher to ascertain the historical value of the areas and potential sites. Possible sites adjacent to the tracts were also surveyed as they would be affected by any development on the tracts.

No sites on or adjacent to the tracts were located that merit nomination to the National Register of Historic Places. The only historic site in the Piceance Basin that should be placed on the National Register is Rock School, located on the SW $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 16, T2s, R97w, 6th P.M. Built in 1897 of masonry and sandstone, the new building replaced a log school that dated from the 1880's. Rock School is the only country school still in use in Rio Blanco County. The school's architecture, its role as a social center in the development of the Piceance area, and the pride local residents take in the structure make Rock School eligible for nomination to the National Register.

Tract 1

Settlers claimed homesteads along Piceance Creek by 1883. The homesteads were primarily cattle ranches which depended on public lands to support their herds. There are few structures remaining from this era. All sites are adjacent to tract 1 (see Fig. 92)

The J. Storey homestead.

Location: the E $\frac{1}{2}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$ and the NW $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 21, T1s, R97w, 6th Prime Meridian.

Present owner: Colorado Division of Wildlife.

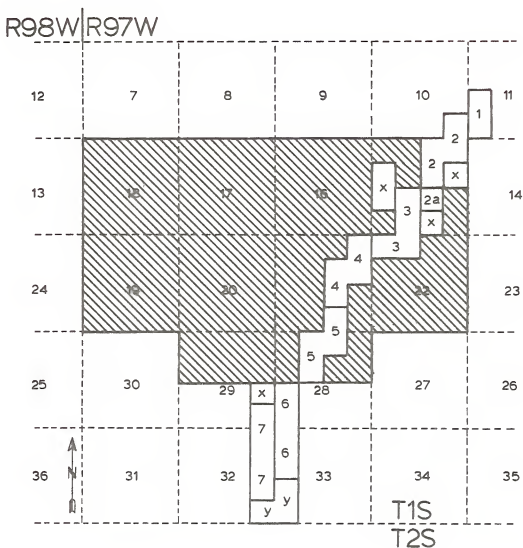
Current use: leased for grazing and cultivation of hay.

Statement of Significance: Joseph Storey located the homestead in the 1880's. The stone structure recorded as 5RB438 was probably a root cellar or storage shed, although I located no documentation as to its function. Constructed at an unknown date, but probably around 1900, the structure and homestead has little historic or architectural value.

Physical history: the following narrative is an incomplete chain of ownership, providing information regarding the historical significance of the property. The sources of reference are the Office of the County Clerk and Recorder, Garfield County, Glenwood Springs, and the Office of the County Clerk and Recorder, Rio Blanco County, Meeker, Colorado.

1889: Deed of trust, 9018, dated February 7, 1889 and recorded on May 6, 1889 in Book 3, page 340, Rio Blanco County Transcribed Records.

Joseph Storey of Garfield County signed a promissory note agreeing to repay J. F. McLean, trustee for Ed Erway, the principal sum of \$700.00 at 2% per month, in three months. Storey secured the loan with his homestead. The land was released on October 21, 1889.



KEY: Stipp -1 Cole -2 Cole(1896) -2a Cox -3
 Storey -4 Sprague -5 Hatch -6 Ryan -7
 Acreage claimed later -x Ryan acquired later -y

Figure 92. Map of in situ oil shale lease tract 1 showing the location of adjacent privately-owned tracts.

- 1891: Patent, 20,830, Ute Series 370, filed on July 13, 1891, and recorded in Book 44, page 335 in Rio Blanco County Records on October 29, 1914. Joseph Storey filed a preemption notice and cash entry patent on the 160 acre homestead described as the E $\frac{1}{2}$ NE $\frac{1}{4}$, the SW $\frac{1}{2}$ NE $\frac{1}{4}$ and the NW $\frac{1}{2}$ SE $\frac{1}{4}$ of Sec. 21, T1s, R97w, 6th P. M.
- 1892: Warranty deed, 2058, dated April 21, 1892, and recorded in Book 13, page 283 on January 5, 1893, in Rio Blanco County Records. Patrick R. Ryan, father and sole heir of Timothy B. Ryan, deceased, of Franklin, New York, in consideration of one dollar conveyed one-quarter interest in the homestead to William B. Ryan of Franklin County, New York and John R. Curtin of Lake County, Colorado.
- 1894: Warranty deed 2659, dated April 4, 1894, and recorded in Book 13, page 343, Rio Blanco County Records on April 17, 1894. William B. Ryan of Chateaugay, Franklin County, New York, conveyed one-eighth interest in the Storey homestead to Edward Curtin (Curtain?) of Leadville. The deed described a bill of sale from Joseph Storey for the property to Jeremiah Mahoney, Reuben Oldland, Timothy Ryan, and Thomas W. Leonard.
- 1919: Warranty deed, 28,975, dated December 19, 1919, and recorded in Book 61, page 359, Rio Blanco County Records on January 2, 1920. J. H. Wilshire in consideration of \$11,300.00, conveyed the Storey homestead to Bert Taylor, which included ditch and water rights to the Case and Storey ditch. Taylor also assumed responsibility for a \$3700.00 mortgage.
- 1929: Deed 44,247, dated and recorded on January 18, 1929 in Book 75, page 487, Rio Blanco County Records. George A. Bates, in consideration of \$25,250.00 conveyed title to the Storey homestead along with the Cole, Stipp, Hatch, and Sparague homesteads to Melvin J. Shearer.

1955: Agreement, 98,707, dated December 30, 1955, and recorded on May 18, 1956, in Book 178, pages 165-171, Rio Blanco County Records. The state of Colorado, pending confirmation of uncontested title, agreed to pay the Square S Land and Cattle Company \$365,000.00 that included all the homesteads adjacent to tract I, plus other large tracts in Piceance Basin. Warranty deed 98708, dated January 16, 1956, and recorded on May 18, 1956 (Book 178, pages 172-175) completed the transaction.

Summary: the field crew located a stone shed (site 5RB438) on the Storey homestead. The structure was probably constructed between 1890 and 1920, when the Storey property was a smaller ranch. The building is the only known structure adjacent to tract I that represents frontier architecture of the late 19th and early 20th centuries. The shed bears no outstanding architectural features that merit special attention. Consult site form 5RB438 for the precise location and physical description of the shed.

The Square S Land and Cattle Company acquired the property from Ida M. Snyder in the 1940's. Ida Snyder was a member of the Snyder family that founded the Square S ranch on Yellow Creek after 1900 and gradually expanded their holdings in the Piceance Basin. The Square S outfit sold the property to the state of Colorado in 1956. The site has little historical value.

The following is a list of land patents, recording the claimants to six other homesteads adjacent to tract I. Unfortunately, the dates on the patents do not usually indicate the date of settlement. Trust deeds, cattle brand registers, bills of sale, and records of ditch and water right claims show dates as early as 1883.

The Stipp homestead

1886: Quitclaim deed 4791, dated November 29, 1886, and recorded in Book 3, page 212. Garfield County Records on July 11, 1887. Stipp conveyed title to the $W\frac{1}{2}SW\frac{1}{4}$ of Sec. 11, T1s, R97w, 6th P.M., to Fannie W. Head and Annie Cole for \$400.00.

1890: Patent 2245, Ute Series 9, filed on June 6, 1890 and recorded in Book 5, page 64, Rio Blanco County Records on March 8, 1893. Casper Stipp filed a preemption notice and cash entry patent for 80 acres described as the $W\frac{1}{2}SW\frac{1}{4}$, Sec. 11, T1s, R97w, 6th P.M.

Summary: Stipp remained no longer than three years before the property became a part of the James M. Cole ranch in 1886. No historical or cultural values are recognized on the property.

The Cole ranch

1885: Stock brand certificate, filed in Book 7, page 331, Garfield County Records on May 18, 1885. Anna Cole, the wife of James M. Cole, and Fannie Head adopted the brand 111 with a wattle on the left check, and an underbite in the left ear of the cattle.

1890: Patent 2543, Ute Series 140, recorded in Book 5, page 82, Rio Blanco County Records on December 28, 1893. On September 15, 1890, James M. Cole filed a preemption notice and cash entry patent for 160 acres described as the $W\frac{1}{2}NE\frac{1}{4}$, the $NE\frac{1}{2}NE\frac{1}{4}$, Sec. 15 and the $SE\frac{1}{4}SE\frac{1}{4}$, Sec. 10, T1s, R97w, 6th P.M.

1896: Patent 5649, Ute Series 56, recorded on October 29, 1900, in Book 5, page 183, Rio Blanco County Records. James M. Cole filed a preemption notice and cash entry patent on 40 acres described as the $NW\frac{1}{4}SE\frac{1}{4}$, Sec. 15, T1s, R97w, 6th P.M. on July 6, 1896.

Summary: James Cole was one of the first prominent Piceance Creek ranchers, who moved to the area in 1884 with his family from Leadville. Cole had previously been a cattleman in Texas. (CWA Interviews, Rio Blanco County, Pamphlet 342, Document 33). Cole, recognizing the problem of succeeding with a 160 acre ranch in a semi-arid region, acquired the Stripp and Hatch homesteads before his death in 1896. The Cole ranch became a part of the Square S ranch in the 1940's. No historic or architectural values are recognized on the Cole homestead.

The Cox homestead

1890: Patent 1106, Ute Series 130, recorded in Book 5, page 12, Rio Blanco County Records on February 9, 1891. John W. Cox, on September 15, 1890, filed a preemption notice and cash entry patent on 160 acres described as the N $\frac{1}{2}$ NW $\frac{1}{4}$, Sec. 22, and the E $\frac{1}{2}$ SW $\frac{1}{4}$, Sec. 15, T1s, R97W, 6th P.M.

1893: Warranty deed 2544, dated November 15, 1893, and recorded in Book 13, page 330, Rio Blanco County Records on December 28, 1893. John W. Cox lost the ranch in 1892, failing to repay a promissary note. Hattie M. Reynolds acquired the property and conveyed it to James Cole and Henry Head for \$1500.00.

Summary: the Cox homestead remained a part of the Cole ranch, and eventually becoming a part of the Square S ranch in the 1940's. No historic or architectural values are associated with the 160 acre tract.

The Sprague homestead

1899: Patent 7766, Ute Series 81, dated on March 17, 1899 and recorded in Book 24, page 35, Rio Blanco County Records on April 25, 1902.

Katherine Sprague filed a preemption notice and cash entry patent on a 160 acre homestead described as the SW $\frac{1}{2}$ SE $\frac{1}{4}$, Sec. 21, the E $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 28, T1s, R97w, 6th P.M.

Summary: after 1900, a James Wilshire acquired the property and sold it to Bert Taylor in 1919. In the 1920's and 1930's George A. Bates, Melvin Shearer and Ida M. Snyder owned the property successively. The Square S eventually acquired the property before selling it to the state of Colorado in 1955. No historic or cultural values are recognized on the Sprague homestead.

The Hatch homestead

1888: Deed of trust 6893, recorded in Book 3, page 319, Rio Blanco County Transcribed Records on April 30, 1888. Franz Hatch secured a promissory note for \$150.00 at 1.5% interest per month with 160 acres described as the W $\frac{1}{2}$ SW $\frac{1}{4}$, Sec. 28, and the W $\frac{1}{2}$ NW $\frac{1}{4}$, Sec. 33, T1s, R97w, 6th P.M.

1891: Patent 41,177, Ute Series 241, dated June 11, 1891, and recorded in Book 44, page 335, Rio Blanco County Records on March 4, 1927. Franz Hatch filed a preemption notice and cash entry patent for 160 acres described as the W $\frac{1}{2}$ SW $\frac{1}{4}$, Sec. 28, and the W $\frac{1}{2}$ NW $\frac{1}{4}$, Sec. 33, T1s, R97w, 6th P.M.

Summary: Franz Hatch was among the first settlers in Piceance Basin, and like others lost his property for failing to pay a mortgage in 1893. In 1899, A. J. Ryan purchased the property from John Ashman. No historic or cultural values are recognized on this homestead.

The A. J. Ryan ranch

1883: declarations of occupancy 58 and 59, recorded in Book 7, page 22, Garfield County Records on May 10, 1883 and May 18, 1883 respectively.

Reverend J. Edward Chapin and L. C. Northrop, an attorney, filed claims on 160 acre homesteads described as being ten and nine miles respectively, above (south) Ryan's ranch on a creek flowing from the west into Piceance Creek. The significance of these records is that Ryan's ranch is used as a fixed point to describe the location of homesteads.

- 1884: A. J. Ryan filed a description of Ryan ditch, numbered 13 in Rio Blanco County ditch plats, and claims to water rights on June 11, 1884 in Garfield County.
- 1885: Deed 1957, filed on October 27, 1885 and recorded in Book 8, page 34, Garfield County Records on November 2, 1885. A. J. Ryan, for five dollars and other valuable considerations, conveyed one-third interest each to Charles G. Limberg and William F. Patrick in his 160 acre ranch described as the SE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 29, the E $\frac{1}{2}$ NE $\frac{1}{4}$, and the NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 32, T1s, R97w, 6th P.M. Patrick and Limberg agreed to invest up to \$6,000.00 in the Ryan ranch for the next ten years. Ryan, in turn, agreed to manage the ranch for five years, then would own a full one-third interest in the ranch. (See Book 7, pages 337-339, Garfield County Records.)
- 1889: Patent 901, Ute Series 9, dated April 2, 1889 and recorded in Book 5, page 4, Rio Blanco County Records on December 2, 1890. Ryan filed a preemption notice and cash entry patent on a 160 acre homestead described as the SE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 29, the NE $\frac{1}{4}$ SE $\frac{1}{4}$, and the E $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 32, T1s, R97w, 6th P.M.
- 1890: Memorandum of settlement 940, dated December 20, 1890 and recorded in Book 5, page 142, Rio Blanco County Records on December 30, 1890. Charles Limberg and W. F. Patrick of Leadville agreed to abrogate the 1885 contract and conveyed full ownership to A. J. Ryan.

1927: Warranty deed 42651, dated February 28, 1927 and recorded in Book 73, page 385, Rio Blanco County Records on January 2, 1928. A. J. Ryan of Garfield County conveyed the title to his ranch to the Square S Land and Cattle Company. The property included the Ryan and Hatch homesteads, the NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 29, SE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 32, and the W $\frac{1}{2}$ SW $\frac{1}{4}$, Sec. 33, T1s, R97w, 6th P.M.

Summary: the Square S sold the property to the state of Colorado in 1956. The Ryan ranch was among the earliest homesteads in Piceance Basin and is of local historical significance. Further research would be necessary to ascertain if Ryan was the first settler in the Piceance, but it is very likely that no documentation exists to locate the first permanent settler in the Piceance Basin. No architectural values remain on the Ryan ranch.

Conclusion: 5RB438, the stone structure on the Storey homestead, has little historical or architectural value, except as being representative of the functional architecture of the late 19th century frontier. The site of the Ryan ranch is the only one of the homesteads that has some local historical value because of its early date of settlement. The Ryan ranch will be reported to the Colorado State Inventory of Historic Sites. Neither site is qualified for the National Register of Historic Sites.

Tract 2

No historic or cultural values are recognized on tract 2. Settlers took up land adjacent to the tract along Hunter and Willow Creeks by the mid-1880s. (see Fig. 93).

The J. Gillmor homestead

1887: Warranty deed 6108, dated December 31, 1887 and recorded in Book 3, page 259, Rio Blanco County Transcribed Records on January 21, 1888. William Dalton conveyed title to his 160 acre homestead to A. A. Rice for \$800.00. The deed, described the property as the N1/2 SW1/4, and the E1/2 NW1/4 of section 20, T3s, R97w, 6th P. M.

1888: Warranty deed 6349, dated January 17, 1888 and recorded in Book 3, page 270, Rio Blanco County Transcribed Records on January 22, 1888. A. A. Rice conveyed the 160 acre homestead to James H. Gillmor in consideration of \$800.00.

1901: Warranty deed 7650, dated September 9, 1901 and recorded in Book 27, page 70, Rio Blanco County Records on March 20, 1902. Henry J. Putnam of Arapahoe County sold the property to Frank J. Ebler for \$550.00

Summary: James Gillmor borrowed heavily on the ranch and lost it by defaulting on a promissory note. Frank Ebler purchased the ranch along with others around 1900, consolidating ownership of homesteads in the area. Humble Oil Company owns the property today. I could not locate a patent for this property, but W. Dalton was probably the original patentee.

The Julius Ebler homestead

1891: Patent 34,900, Ute Series 290, dated June 11, 1891, and recorded

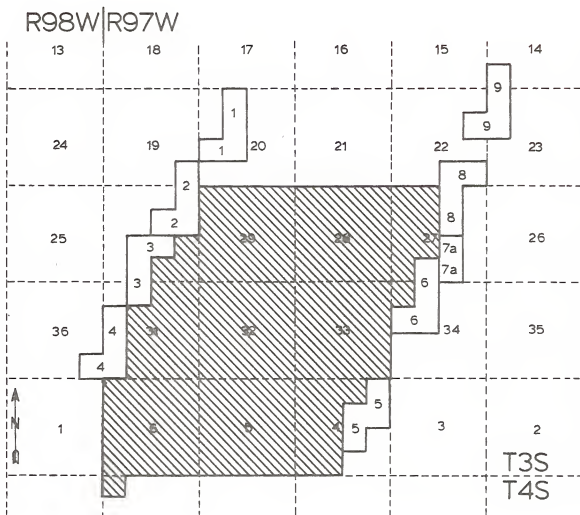


Figure 93. Map of in situ oil shale lease tract 2 showing the location of adjacent privately-owned tracts.

in book 51, page 325, Rio Blanco County Records on April 23, 1923. Julius Ebler filed a preemption notice and cash entry patent on a 160 acre homestead described as the SE 1/4 of the SE 1/4 of section 19, the E 1/2 NE1/4 and the SW 1/4 NE 1/4 of section 30, T3s, R97w, 6th P. M.

1902: Warranty deed 7651, dated February 28, 1902 and recorded in Book 22, page 299, Rio Blanco County Records on March 20, 1902. Emma E. Blodgett of New Hampshire conveyed the title of the J. Ebler homestead to Frank Ebler for \$275.00.

Summary: Julius Ebler secured loans with his ranch and lost it in 1893, during an economic depression. F. Ebler, his brother, purchased the property, substantially increasing his holdings in the Hunter-Willow Creek area. No historic or architectural values are recognized on the homestead.

The Hadley homestead

1890: Trust deed 434, dated June 15, 1890, and recorded in Book 15 page 530, Rio Blanco County Records on January 30, 1890. Edwin A. Hadley signed a promissory note for the sum of \$720.00 at 6% per annum, payable to the Globe Investment Company of Boston. Hadley secured the loan with the NE 1/4 NW 1/4 of section 31, the E 1/2 SW 1/4 and the NW 1/4 SE 1/4 of section 30, T3s, R97w, 6th P. M.

1891: Patent 7716, Ute Series 537, dated November 9, 1891 and recorded in Book 24, page 32, Rio Blanco County Records on April 11, 1902. Edwin Hadley filed a preemption notice and cash entry patent on a 160 acre homestead on Hunter Creek.

Summary: Frank Ebler acquired the property in 1901, Hadley having lost it by defaulting on a promissory note. Humble Oil currently owns the

property. No historic or architectural values are recognized on the property.

The G. Gillmor homestead

1888: Deed of trust 7689, dated and recorded on October 1, 1888 in Book 3, page 626, Rio Blanco County Transcribed Records. George Gillmor signed a promissory note with Crippen, Lawrence, and Company for \$150.00 plus interest. Gillmor secured the loan with the W 1/2 SW 1/4, the SW 1/4 NW 1/4 of section 31, T3s, R97w and the SE 1/4 SE 1/4 of section 36, T3s, R98w 6th P. M

1891: Patent, Ute Series 291, dated June 11, 1891 and recorded in Book 51, page 319, Rio Blanco County Records on March 9, 1923. George Gillmor filed a preemption notice and cash entry patent for 156.16 acres previously described.

1901: Warranty deed 7650, dated September 9, 1901 and recorded in Book 27, page 71, Rio Blanco County Records on March 20, 1902. George A. Foster of Concord, New Hampshire conveyed the property to Frank Ebler in consideration of \$550.00.

Summary: Gillmor lost the ranch for failure to pay a note due in 1893, and Ebler eventually acquired the ranch. Humble Oil Company owns the property today. No cultural or historical values are associated with the 156 acre homestead.

The Weldon homestead

1885: Warranty deed 2072, dated December 1, 1885 and recorded in Book 8, page 46, Garfield County Records on December 7, 1885. John Weldon conveyed the title to the E 1/2 NE 1/4, the SW 1/4 NE 1/4 and the NW 1/4 SE 1/4 of section 4, T4s, R97w, 6th P. M., comprising 160 acres, to William F. Patrick in consideration of \$775.00.

1886: Quitclaim deed 2564, dated April 26, 1886 and recorded in Book 3, page 482, Rio Blanco County Transcribed Records on May 6, 1886.

W. F. Patrick surrendered title to the 160 acre plot to the Plateau Livestock Company for \$100.00 and other valuable considerations.

1889: Patent 2002, Ute Series 10, dated April 2, 1889 and recorded in Book 5, page 55, Rio Blanco County Records on November 21, 1892.

John Weldon filed a certificate of register on the 160 acre homestead described in 2072.

Summary: I could not locate a patent on this property although Ebler certainly filed one. Humble Oil currently owns the property. The site is of some local historical significance, as Ebler was one of the more prominent ranchers in the Piceance Basin. No architectural values are associated with the property.

The Ebler homestead #2

1916: Patent 32,296, dated June 1, 1916 and recorded in Book 44, page 291, Rio Blanco County Records on November 19, 1921. Frank Ebler filed a certificate of register on 89 acres described as the W 1/2 SE 1/4 of section 27 T3s, R97w, 6th P. M.

Summary: Humble Oil owns the plot today. Several structures remain on the property today, including what were probably the original structures. There are three cabins, several corrals, and sheds. The buildings are characteristic, but not outstanding examples of late frontier architecture. The site has some local historical significance as it was probably the home of Frank Ebler, a prominent western slope entrepreneur and rancher. The structures have little architectural value.

The Hanna homestead

1888: Warranty deed 6218, dated and recorded on February 2, 1888 in Book 3, page 268, Rio Blanco County Transcribed Records. James R.

Hanna sold the 160 acre homestead to the Plateau Livestock Company for \$1600.00. The property is described as the S 1/2 SE 1/4 of section 22, and the W 1/2 NE 1/4 of section 27, T3s, R97W, 6th P. M.

1890: Patent 12503, Ute Series 179, dated November 22, 1890 and recorded in Book 24, page 171, Rio Blanco County Records on April 25, 1908. James R. Hanna filed a preemption notice and cash entry patent on an 160 acre homestead on Willow Creek.

Summary: Shell Oil owns the property currently. No historic or architectural values are recognized on the property.

The Pringle homestead

1888: Deed 6017, dated January 3, 1888 and recorded in Book 14, page 304, Rio Blanco County Records on January 5, 1888. Thomas A. Pringle conveyed his 160 acre homestead to the Plateau Livestock Company in consideration of \$600.00. The property was described as the SE 1/4 NE 1/4 of section 22, the W 1/2 NW 1/4 of section 23, and the SW 1/4 SW 1/4 of section 14, T3s, R97W, 6th P. M.

1890: Patent 12,502, Ute Series 180, dated November 22, 1890 and recorded in Book 24, page 179, Rio Blanco County Records on April 25, 1908. Thomas A. Pringle of Garfield County filed a preemption notice and cash entry patent on 160 acres on Willow Creek.

Summary: Shell Oil owns the property today. No historic or cultural values are recognized on the Pringle homestead.

Conclusion: The Hunter-Willow Creek area was probably developed after the

choice lands were taken along Piceance Creek. Many of the original patentees went bankrupt, leading to the consolidation of ownership in the area. The Plateau Livestock Company was one of the largest cattle outfits in the area.

Frank J. Ebler was a prominent rancher in the Piceance Basin and merchant in Aspen, Colorado. Born in Germany, Ebler came to Leadville in 1882. In 1887, he took up a 160 acre homestead on Willow Creek. By 1905, Ebler owned 640 acres in the area and added 80 more in 1916. Ebler was well-known in Aspen, as he owned the Blue Front Store, a grocery and meat market opened in 1893 (Bowen 1905: 216-217).

There are no historic values recognized on tract 2 and few sites adjacent to the tract. The structures on the Weldon and Ebler homesteads are of minor historical and architectural value; the buildings on the Weldon property are representative of the functional architecture of the late 19th century frontier, while the structures on the Ebler property have some local historical significance due to their connection with Ebler.

Tract 3

One of the largest ranches in Piceance Basin, the 84 ranch, was established on Yellow Creek in 1884, adjacent to tract 3. No historic values or architectural values are recorded on tract 3 (see Fig. 94).

The Lauder homestead

1886: Quitclaim deed 4508, dated and recorded in Book 3, page 193.

Garfield County Records on June 2, 1887. John C. Lauder conveyed his property to Arthur Latham in consideration of \$300.00.

1890: Patent, Ute Series 66, dated June 8, 1890 and recorded in Book 24, page 7, Rio Blanco County Records on May 27, 1901. John C. Lauder of Garfield County Filed a preemption notice and cash entry patent on the E 1/2 SE 1/4 of section 20, the NW 1/4 SW 1/4 of section 21 and the NE 1/4 NE 1/4 of section 29, T1s, R98w, 6th P.M.

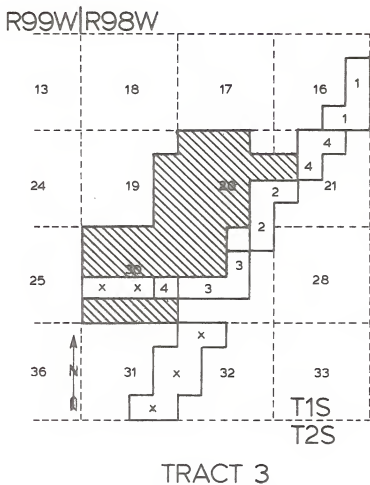
1895: Warranty deed 3028, dated February 18, 1895 and recorded in Book 13, page 397, Rio Blanco County Records on April 5, 1895. The Garfield Land and Cattle Company sold the Lauder homestead to Arthur B. Critchlow for \$100.00.

Summary: The Lauder ranch became a part of the 84 ranch, and is currently owned by the Colorado State Game and Fish Department. No historic or architectural values are associated with the ranch.

The Tirey homestead

1886: Quitclaim deed 4509, dated October 7, 1886 and recorded in Book 3, page 194, Garfield County Records on June 21, 1887. H. Gordon Tirey transferred the title to the property described as the N 1/2 SW 1/4, the NW 1/4 SE 1/4, and the SW 1/4 NE 1/4 of section 29, T1s, R98w, 6th P.M. to A. Latham for \$500.00.

1890: Patent 6369, Ute Series 67, dated January 6, 1890 and recorded in Book 24, page 6, Rio Blanco County Records on May 27, 1901.



KEY: Ward -1 Lauder -2 Tirey(84 Ranch) -3
 Crichlow -4 Johnson (later a part of the
 Square S Ranch) -x

1 mile

Figure 94. Map of in situ oil shale lease tract 3 showing the location of adjacent privately-owned lands.

H. Gordon Tirey filed a preemption notice and cash entry patent on an 160 acre homestead.

1891: Warranty deed 1315, dated February 10, 1891 and recorded in Book 13, page 154, Rio Blanco County Records on April 21, 1891. A. Latham of Arapahoe County conveyed the title to the Lauder and 84 ranches to the Garfield Land and Cattle Company in consideration of one dollar.

1895: Warranty deed 3028, dated February 18, 1895 and recorded in April 5, 1895 in Book 13, page 397, Rio Blanco County Records. The Garfield Land and Cattle Company sold the 84 ranch, including the Lauder property, to Arthur B. Critchlow for \$1,000.00.

1914: Patent 20, 727, dated August 7, 1914 and recorded in Book 44, page 83, Rio Blanco County Records on September 9, 1914. A. B. Critchlow filed a certificate of register on the NW 1/4 NE 1/4 and the E 1/2 NW 1/4 of section 21, T1s, R98w, 6th P. M.

Patent 20, 728, dated August 7, 1914 and recorded in Book 44, page 84 on September 9, 1914, Rio Blanco County Records. A. B. Critchlow filed a certificate of register on 40 acres described as the NE 1/4 SE 1/4 of section 30, T1s, R98w, 6th P. M.

1924: Quitclaim deed, 37, 715, dated December 1, 1924 and recorded in Book 75, page 52, Rio Blanco County Records on December 8, 1924. The Bar D Cattle Company conveyed extensive holdings around the 84 ranch to the Cross V Cattle Company for one dollar and other valuable considerations. The property included the S 1/2 SE 1/4 of Section 16 (80 acres of the Ward homestead) and the Lauder and Tirey homesteads.

1955: Agreement 98707, dated December 30, 1955, and recorded in Book 178, pages 165-171, Rio Blanco County Records on May 18, 1956.

The Square S Land and Cattle Company agreed to sell their holdings in the Piceance Basin to the state of Colorado, pending confirmation of clear title to the property. Warranty deed 98, 708, recorded on May 18, 1956 completed the transaction.

The Ward homestead

1886: Deed 7875, recorded in Book 8, page 107, Garfield County Records on July 20, 1886. James Ward conveyed 160 acres described as the S 1/2 SE 1/4, the NE 1/4 SE 1/4, and the SE 1/4 NE 1/4 consideration of \$1600.00.

1890: Patent 5670, dated June 6, 1890, and recorded in Book 5, page 187, Rio Blanco County Records on November 7, 1900. James H. Ward of Garfield County filed a preemption notice and cash entry patent on an 160 acre homestead on Yellow Creek.

Summary: the Ward homestead was purchased by A. B. Critchlow in the 1890s, and became a part of the 84 ranch. No historic or cultural values are recognized on the property.

Conclusion: The 84 ranch was settled in 1884, hence its name. It was owned by a series of prominent ranchers and cattle companies, serving as headquarters for many of them. The Square S Land and Cattle Company acquired the ranch in 1927, which was owned by the Snyder family of Yellow Creek. Using the 84 ranch as their headquarters, the Snyders expanded their holdings throughout the Piceance Basin, until they sold the property to the state of Colorado in 1956. The Colorado Division of Wildlife leases the property today.

The ruins on the 84 ranch (Tirey homestead) were probably constructed in the 20th century for the most part and have little architectural value due to their poor condition. The ruins include

a stone and masonry ranch house, a shed, a tack house, a water storage tank, corrals, bunkhouses and several other structures. The 84 ranch has local historic significance as one of the earliest and most prominent ranches in Rio Blanco County. The site will be recorded with the Colorado State Inventory of Historic Sites.

Tracts 4, 5, and 6

Introduction

As land became scarce on piceance Creek, settlers took up homesteads along Ryan Gulch and Black Sulfur Creek, Both adjacent to tracts 4 and 5 and 6. There are two historic sites located on the tracts and recorded in the field reports compiled in the fall of 1976. For detailed physical descriptions, consult site forms numbered 5RB399 and 5RB390 (See Figs. 95 and 96).

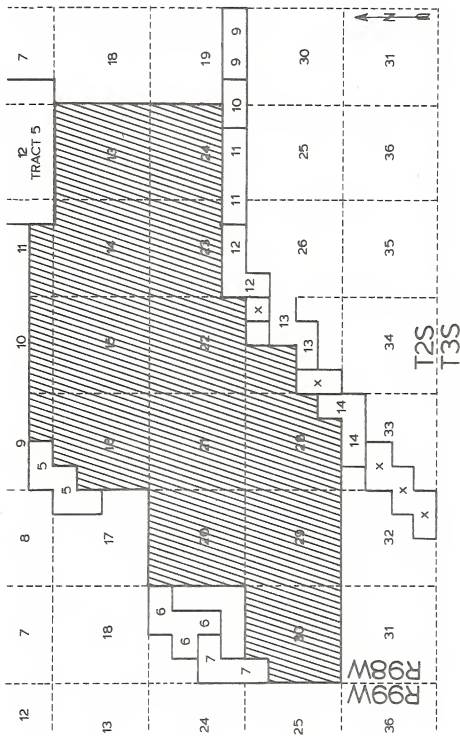
5RB399

Location: tract 4, the SW 1/4 NE 1/4 NE 1/4 Section 29, T2s, R98w 6th P. M.

Physical history: I could not locate any information in the Office of the County Clerk and Recorder, or in secondary sources that give any indication as to who constructed the cabin or the purpose of it. The site consists of a cabin foundation and a corral. Tin cans indicate a date of occupation of around 1920. A wood stove patented 1873, suggests that the structure was used for housing. There is no indication of cultivation in the area, permitting one to dismiss the theory that the site was one of numerous homesteads taken up for dry-land farming. The cabin may have been built by an oil shale speculator in the 1920s. The site has no architectural significance, the lack of information on the site makes any judgment regarding the historical significance of it indefinite at best.

5RB390

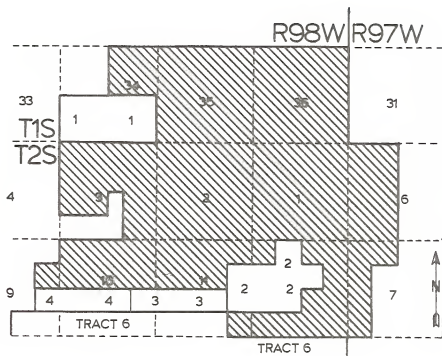
Location: tract 5, the SE 1/4 SW 1/4 SE 1/4 Section 34, T1s, R98w, 6th P. M.



TRACTS 4-6

KEY: Critchlow -5 Reigle -6 Galloway -7 Gaw -9 Bainbrich -10,11 McIlhannon -12
 Taylor -13 Sawyer -14 Lands patented at a later date -x

Figure 95. Map showing in situ oil shale lease tracts 4 and 6 and adjacent privately-owned areas.



TRACT 5

KEY: Johnson -1 Parcel -2 Homestead -3
Pierce -4

1 mile

Figure 96. Map of in situ oil shale lease tract 5 showing adjacent privately-owned tracts.

Physical history: The site is both a prehistoric and historic site, the historic component being nothing more than a hole in the ground with several logs scattered about. It may have been a dugout type of cabin. The ruin is located on property patented by L. A. Johnson in Book 26, page 169, Rio Blanco County Records on January 28, 1926. The property is 320 acres described as the S 1/2 of section 34, T1s, R98w, 6th P. M. In 1973, Nellie M. Reigle conveyed the property to F(?). K. and Mary B. Norell. No historic or cultural significance is attached to the site.

Parcel 4, tract 5

1945: Corporation warranty deed 68,979, dated March 7, 1945 and recorded in Book 97, page 389, Rio Blanco County Records on June 19, 1945. The Cross V Cattle Company sold 2,320.21 acres to the Square S ranch for \$15,000.00. Included in the transaction was Parcel 4, described as the SE 1/4 NE 1/4 and the NE 1/4 SE 1/4 of section 11, the SW 1/4 NE 1/4, the E 1/2 NW 1/4, the SW 1/4 NW 1/4 and the N 1/2 SW 1/4 of section 12, T2s, R98w, 6th P. M.

Summary: parcel 4 was purchased by the state of Colorado in 1956.

I was unable to locate a patent on the property, but a search through patent records indicate a date after 1900. No historic or cultural values are associated with the property.

Homestead 3

1927: Warranty deed 41,221, dated March 15, 1927 and recorded in Book 75, page 162, Rio Blanco County Records on March 22, 1927. The Stockmans Loan Company conveyed the title of a 160 acre homestead to the Cross V cattle Company for undisclosed valuable considerations. The deed described the land as the NE 1/4 SE 1/4 of

section 10, the N 1/2 SW 1/4 and the NW 1/4 SE 1/4 of section 11, T2s, R98w, 6th P. M.

Summary: I could not locate a patent on the property. The Cross V Cattle Company sold the property to the Square S in 1945. The Colorado Division of Wildlife currently owns the property, acquiring it from the Square S in 1956. No historic or cultural values are associated with the property.

The Pierce homestead

- 1885: Miscellaneous record 1997, dated November 16, 1885 and recorded in Book 7, pages 355-356, Garfield County Records on November 16, 1885. Frank Pierce of Salt Lake City appeared before A. R. G. Ferguson, the Garfield County recorder, and swore an oath that the property described as the NW 1/4 SE 1/4, the N 1/2 SW 1/4 of section 10 and the NE 1/4 SE 1/4 of section 9, T2s, R98w, 6th P. M. had no water running through it and claimed rights to a ditch.
- 1887: Quitclaim deed 3640, dated February 8, 1887 and recorded in Book 1, pages 188-189, Garfield County Records on February 14, 1887. Frank Pierce of Salt Lake City sold the homestead to Arthur B. Critchlow, trustee for Garfield County, for \$400.00.
- 1890: Patent 6627, Ute Series 85, dated June 8, 1890 and recorded in Book 24, page 11, Rio Blanco County Records on July 12, 1901. Frank Pierce of Garfield County filed a preemption notice and a sash entry patent on 160 acres of Ryan Gulch.
- 1892: Deed 1838, dated May 23, 1892 and recorded in Book 2 page 213 Rio Blanco County Records on June 15, 1892. Frank Pierce sold his 160 acre homestead to A. B. Critchlow, trustee for Rio Blanco County for \$500.00.

1924: Quitclaim deed 37,715, dated December 1, 1924 and recorded in Book 75, page 52, Rio Blanco County Records on December 8, 1924. The Bar D Cattle Company surrendered title to 120 acres of the Pierce homestead to the Cross V Cattle Company, which included the acreage in section 10. Ryan School occupied the NE 1/4 SE 1/4 of section 9, T2s, R98W, 6th P. M.

Summary: The Square S Land and Cattle Company acquired the Pierce homestead in 1945. The Colorado State Game and Fish Department Currently owns the property. Ryan School is the sole historic site of value adjacent to the tracts.

Ryan School

There is little information on Ryan School readily available. The school was constructed in 1919 and operated until 1933. The school was closed periodically due to the inability of the administrators to locate a teacher. The school is a small log structure with a stone foundation and a high-gabled roof; it could house at best about a dozen students. Other structures include a privy, a corral, and a stock shed. Because of the country school's importance in the social development of the area, and since the school represents the architecture of the turn-of-the-century frontier, it will be reported to the Colorado State Inventory of Historic Sites. The schoolhouse is in good condition, and the Rio Blanco Historical Society has placed a fence and sign on the premises.

The Critchlow homestead

1900: Patent 6098, Ute Series 105, dated December 17, 1900 and recorded in Book 5, page 199, Rio Blanco County Records on Marcy 29, 1901. A. B. Critchlow filed a preemption notice and cash

entry patent on a 200 acre ranch described as the S 1/2 SW 1/4 of section 9, the NW 1/4 NW 1/4 of section 16, and the E 1/2 NE 1/4 of section 17, T2s, R98W, 6th P. M.

Summary: the Bar D Cattle Company quitclaimed title to the Cross V Cattle Company in 1924. The Square S acquired the property in 1945 and sold it to the Colorado State Game and Fish Department in 1956. No historic or cultural values are recognized on the property.

The Reigle ranch

Summary: I could not find any information concerning this ranch except that F. (S?) A. and Mary Norell own the ranch today, which they purchased from the Reigle family, who owned the 200 acre ranch for many years. A log cabin with a high-gabled roof is located on the property, which is in excellent condition, and appears to have been built around 1900. The cabin may be of some historical significance, but no action is recommended, pending further information.

The Galloway homestead

1885: Warranty deed 2176, dated November 18, 1885 and recorded in Book 1, page 91, Garfield County Records on January 19, 1886. John H. Galloway of Union, Broome County, New York sold a 159.41 acre ranch to Sarah Miller for \$1500.00. The property was described as the W 1/2 SW 1/4, the NE 1/4 SW 1/4 of section 19, and the NW 1/4 NW 1/4 of section 30, T2s, R98W, 6th P. M.

1889: Patent 6455, dated July 1, 1889 and recorded in Book 24, page 10, Rio Blanco County Records on July 2, 1901. John H. Galloway of Garfield County filed a certificate of register for a homestead on Ryan Gulch.

Summary: by 1894, A. B. Critchlow had acquired the property. The Oil Shale Corporation and Atlantic Richfield own the property today. No historic or architectural values are associated with the Galloway homestead.

The W. Gaw homestead

1890: Patent 4250, Ute Series 33, dated January 22, 1890 and recorded in Book 5, page 133, Rio Blanco County Records on February 24, 1898. William W. Gaw filed a preemption notice and cash entry patent on an 160 acre homestead described as the SE 1/4 SW 1/4, the S 1/2 SE 1/4 of section 19, the SW 1/4 SW 1/4 of section 20, T2s, R97w, 6th P. M.

1894: Warranty deed 2641, dated January 1, 1894 and recorded in Book 13, page 342, Rio Blanco County Records on March 28, 1894. William Gaw sold his property to John Weldon in consideration of \$1,200.00.

1898: Trustee's deed 4255, dated January 22, 1898 and recorded in Book 2, pages 511 - 515, Rio Blanco County Records on February 28, 1898. John Weldon lost his property for failure to pay a loan due in April, 1897, to W. Gaw. Gaw reacquired the ranch for \$600.00.

Warranty deed 4327, dated May 21, 1898 and recorded in Book 19, page 205, Rio Blanco County Records. W. Gaw of El Paso County conveyed the title to the ranch to James Simpson for \$600.00.

1899: Warranty deed 5146, dated and recorded on January 2, 1899 in Book 19, page 383, Rio Blanco County Records. James Simpson conveyed the property to James Mikkelsen for \$1,200.00.

Summary: Equity Oil, Mobil and Atlantic Richfield currently own the homestead. No historic or architectural values are recognized on the property.

The Bainbrich homestead

- 1898: Trust deed 4192, dated and recorded on January 8, 1898 in Book 18, page 125, Rio Blanco County Records. Joseph Edward James, of Piceance Post Office signed a promissory note for \$220.00 , securing it with the SE 1/4 SE 1/4 of section 23, the S 1/2 SW 1/4 and the SW 1/4 SE 1/4 of section 24, T2s, R98w, 6th P. M.
- 1901: Patent 7226, Ute Series 1664, dated August 27, 1901 and recorded in Book 24, page 19, Rio Blanco County Records on January 2, 1902. James W. Bainbrich Jr., filed a certificate of register on an 160 acre homestead described in 4192.
- 1908: Patent 15, 934, Ute Series 339, designated a Desert Lands Patent, dated September 19, 1908 and recorded in Book 24, page 195, Rio Blanco County Records on October 20, 1909. James W. Bainbrich Jr. added 80 acres to his ranch by filing a claim to lot 4 (the SW 1/4 SW 1/4) of section 19, T2s, R97w, and the SE 1/4 SE 1/4 of section 24, T2s, R98w, 6th P. M.

Summary: James W. Bainbrich was a well-known rancher in the Piceance for many years after 1900. Joseph James apparently never filed a proper patent on the property, enabling Bainbrich to acquire the ranch with a patent. The bainbrich ranch served as the Sulfur Post Office from July 2, 1902 and discontinued on January 15, 1926. Atlantic Richfield, Mobil Oil and Equity Oil currently own the property. No historic or cultural values are recognized on the property.

The McMahon homestead

- 1890: Patent 4627, Ute Series 105, dated August 1, 1890 and recorded in Book 5, page 154, Rio Blanco County Records on December 29, 1898.

Thomas McMahon of Garfield County filed a preemption notice and cash entry patent on a 160 acre homestead described as the S 1/2 SW 1/4, the SW 1/4 SE 1/4 of section 23, and the NW 1/4 NW 1/4 of section 26, T2s, R98w, 6th P. M.

Summary: I found very little information on this homestead, regarding later owners. Mobil, Equity Oil, and Atlantic Richfield own the property today. No historic or architectural values are recognized on the McMahon homestead.

The Taylor homestead

1890: Patent 8448, Ute Series 165, dated November 22, 1890 and recorded in Book 24, page 50, Rio Blanco County Records on February 26, 1903. Daniel D. Taylor filed a preemption notice and cash entry patent on an 160 acre ranch described as the S 1/2 NE 1/4, the NE 1/4 SW 1/4, and the NW 1/4 SE 1/4 of section 27, T2s, R98w, 6th P. M.

1897: Warranty deed 4079, dated October 13, 1897 and recorded in Book 19, page 168, Rio Blanco County Records on October 25, 1897. D. D. Taylor conveyed his ranch to Eliza Taylor for a small sum.

1899: Warranty deed 5030, dated August 7, 1899 and recorded in Book 19, page 351, Rio Blanco County Records on October 26, 1899. Eliza J. Taylor sold the ranch to C. H. Chatfield for one dollar, including all improvements and water rights.

Summary: the Taylor homestead changed ownership several times after 1899. In 1927, the heirs of Peter Horn estate sold the property to John Duckett. The Duckett ranch became one of the larger and more prominent family ranches in the Piceance Basin. In 1945, the Ducketts sold the property to the Boies and Eyer ranch. Atlantic Richfield, Equity Oil and Mobil own the property today.

No historic or cultural values are recognized on the ranch.

The Sawyer homestead

1893: Patent 2752, Ute Series 1067, dated January 7, 1893 and recorded in Book 5, page 87, Rio Blanco County Records on July 28, 1894.

Scott Sawyer filed a preemption notice and cash entry patent on 160 acres described as the SE 1/4 SE 1/4 of section 28, the N 1/2

NE 1/4 and the NE 1/4 NW 1/4 of section 33, T2s, R98w, 6th P. M.

1894: Warranty deed, 2897, dated and recorded in Book 13, page 378, Rio Blanco County Records on December 11, 1894. Scott Sawyer conveyed the ranch to David French with ditch and water rights for \$900.00.

Summary: John and Ollie Duckett eventually acquired the property, and located their ranch buildings on the SE 1/4 SE 1/4 of section 28. Atlantic Richfield, Equity Oil and Mobil own the ranch today. No historic or architectural values are associated with the Sawyer homestead.

Conclusion: For a relatively large area, there are few sites with any historical value. There are no significant historical sites on the tracts themselves. The only site of any historical significance is Ryan School.

Tracts 7, 8, and 9

Introduction

Tracts 7, 8, and 9 are located on land President Chester A. Arthur designated as the Uncompahgre Reservation on January 5, 1882. A Congressional act, passed in 1894, opened the reservation to homesteaders and miners, but the land did not return to the public domain until March 3, 1903.

The tracts are located on arid lands in Utah. Due to the aridity of the region, agricultural activities have historically been limited to the cattle and sheep industry. Deposits of gilsonite, oil, and gas played the most important role in the areas the tracts are located on. Hence any historic sites would most likely be associated with the mining industry.

Tract 7

Introduction: Activities on this tract have centered around the gilsonite industry, speculation in oil shale and seasonal grazing. The field crew located numerous trash dumps probably left by sheepherders, recording one on site forms, but these have no historical value. Another common feature located on parts of tract 7 is a gilsonite trench, a deep trench left by the extraction of vertical veins of gilsonite (See Fig. 97). This trench has little historical value.

Adjacent to tract 7 is a large stone and mortar building that had at one time been a roof of logs and dirt. Probably constructed shortly after 1905, the structure has four rooms with outside entrances and one has a fire place built into the wall, indicating

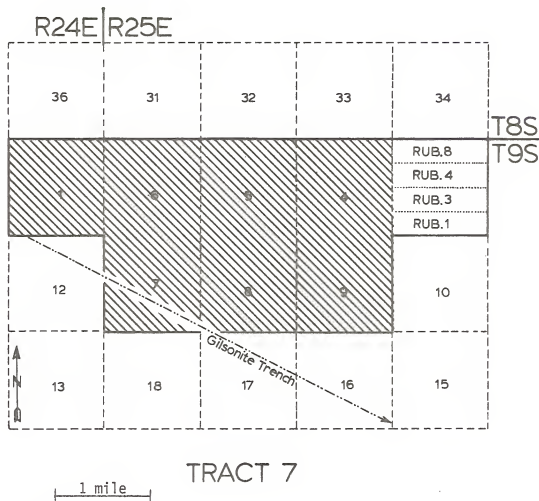


Figure 97. Map of in situ oil shale lease tract 7 showing the location of the gilsonite trench and four mining claims, Ruberta 1, Ruberta 3, Ruberta 4, and Ruberta 8. The tract is located east of the town of Bonanza in Uintah County, Utah.

that the structure was used as a living quarters. The building is in a poor state of repair; the wooden floor has been taken; the roof is caved in; and even though the stone walls stand, they are constructed of shale that readily crumbles when touched. The structure is beyond restoration. Carvings on the plaster interior indicate that the site was abandoned in the 1930s. The building has little historical value. Its location is approximately the NW 1/4 SW 1/4 SE 1/4 of section 6, T9s, R95e, Salt Lake Meridian.

The following survey utilized the records of the Office of the County Clerk and Recorder, Uintah County, Vernal, Utah. Also the Mining Record Index of the Vernal Abstract Company proved indispensable in locating pertinent material.

1904: Mineral certificate 3530, recorded on September 2, 1905 in Book U, pages 72-79, Uintah County Mining Records. C. O. Baxter filed a claim on the White River Dixie Consolidated Mine that gave him the mineral rights to the gilsonite located in the famous Cowboy lode running through the SW corner of section 1, T9s, R24e, S. L. M.

1905: Mineral certificate 19, recorded in Book U, pages 610-611 Uintah County Mining Records on January 30, 1907. C. O. Baxter filed a patent on the gilsonite claims named the White River numbers 20 through 27 in the Cowboy lode in sections 1, 2, 11, and 12, T9s, R24e, S. L. M.

Summary: C. O. Baxter was a prominent figure in the development of the gilsonite industry in eastern Utah and the Uintah Railway. The Cowboy was one of the richest lodes ever located, and is locally significant in the history of the gilsonite industry.

1913: The following are placer mining claim location notices for mineral

rights to oil and gas deposits on tract 7. None ever received patents, and all are located in the Mining Records of Uintah County. The claimants were listed as Ed Zachritz, Julian W. Gorse, Margaret R. Barron, A. H. Pinke1, J. J. Koenigsmark, A. Koenigsmark, S. P. Barron, Julia Kobusch, A. K. Stewart, F. N. Wridden, E. H. Gorse.

Section 4, T9s, R25e, S. L. M.

The AKS, located April 23, 1913 on the SE 1/4 and recorded in Book Y, page 454, May 14, 1913.

The Ohio, located the same day on the NE 1/4 and recorded in Book Y page 455, May 14, 1913.

The Woodrow, and the Wilson, located April 17, 1913 on the SW 1/4 and NW 1/4 respectively and recorded in Book Y, page 296, April 24, 1913.

Section 5, T9s, R25e, S.L.M.

The Jessie W., located April 17, 1913 on the SE 1/4 and recorded in Book Y, page 298, May 24, 1913.

The columbus, located April 17, 1913 on the NE 1/4 and recorded in Book Y, page 299, May 24, 1913.

The Shakespear, SW 1/4, and the Garrison NW 1/4, located April 17, 1913 and recorded on May 24, 1913 in Book Y, page 300.

Section 6, T9s, R25e, S. L. M.

The New Castle, located April 17, 1913 on the NE 1/4 and recorded in Book Y, page 306, May 24, 1913.

The Bald Eagle (NW 1/4), the Lindley M. (SE 1/4), and the Blue Ridge (SW 1/4) located on April 17, 1913 and recorded in Book Y, page 307 on May 24, 1913.

Section 1, T9s, R24e, S. L. M.

The topeka (SW 1/4), the Hamlet (SE 1/4), the Julius (NE 1/4), and the Alve D. (NW 1/4), located on April 17, 1913 and recorded in Book Y, page 314-315 on May 24, 1913.

Section 7, T9s, R25e, S. L. M.

The Denver (NW 1/4), the ST. Louis (NE 1/4), the Hazel (SW 1/4), and the Jon G. (SE 1/4) located on April 17, 1913 and recorded in Book Y, pages 308-309, May 24, 1913.

Section 8, T9s, R25e, S. L. M.

The Salt Lake (NW 1/4), the Nancy W. (SW 1/4, the Bill Taft (NE 1/4), and the Azuler (SE 1/4) located on April 17, 1913 in Book Y, pages 300-301 on May 24, 1913.

Section 9, T9s, R25e, S. L. M.

The Negro (SW 1/4), and the Teddy (NW 1/4) located on April 17, 1913 and recorded in Book Y, pages 296-297, April 24, 1913.

The wildwood (SE 1/4), and the Widman (NE 1/4) located on April 23, 1913 and recorded in Book Y, page 456 on May 14, 1913.

1915: The following are placer mining claim location notices for mineral rights to oil and gas deposits on tract 7. No patents were ever recorded on these claims. All notices are located in the Mining Records of Uintah County. The claimants were S. H. Feldmeier, H. J. Oldendorph, L. W. Bode, C. H., R. J., and M. A. Koenigsmark, J. F. W. Binder, John Herman, L. F. Bickelhaupt, and H. J. Oldendorph. Their agent was J. T. McConnell and their witnesses were Nile Hughel and L. Thompson.

Section 4, T9s, R25e, S. L. M.

The Denver 13 (NE 1/4), the Denver 14 (SE 1/4), the Denver 15

(SW 1/4) and the Denver 16 (NW 1/4) located on January 2, 1915 and recorded in Book Z, pages 504-505, January 23, 1915.

Section 5, T9s, R25e, S. L. M.

The Denver 17 (NE 1/4), the Denver 18 (SE 1/4), the Denver 19 (SW 1/4) and the Denver 20 (NW 1/4), located on January 2, 1915 and recorded in Book Z, pages 505-506.

Section 6, T9s, R25e, S. L. M.

The Denver 21 (NE 1/4), the Denver 22 (SE 1/4), the Denver 23 (SW 1/4), and the Denver 24 (NW 1/4), located on January 2, 1915 and recorded in Book Z, pages 506-507 on January 23, 1915.

Section 1, T9s, R24e, S. L. M.

The Utah 2 (SE 1/4), the Utah 3 SW 1/4), the Utah 4 (NW 1/4) and the Utah 1 (NE 1/4), located on January 2, 1915 and recorded in Book Z, pages 455-456 on January 23, 1915.

Section 7 T9s, R25e, S. L. M.

The Denver 25 (NE 1/4), the Denver 26 (SE 1/4), the Denver 27 (SW 1/4), and the Denver 28 (NW 1/4), located January 2, 1915 and recorded in Book Z, pages 508-509 on January 23, 1915.

Section 8, T9s, R25e, S. L. M.

The Denver 29 (NE 1/4), the Denver 30 (SE 1/4), the Denver 31 (SW 1/4), and the Denver 32 (NW 1/4), located on January 2, 1915 and recorded in Book Z, pages 509-510 on January 23, 1915.

1917: The placer mining claim notices reserved the rights to oil and gas deposits on tract 6 for the following individuals; E. F. and H. A. Tibbe, E. G. and L. G. Skirts, O. M. Barron, Henry Wallhaus. The claimants allowed the claims to lapse and they were never patented. The notices are located in the Mining Records of

Uintah County.

Section 3, T9s, R25e, S. L. M.

The Ruberta 1, located on the S 1/2 S 1/2 S 1/2 on December 19, 1917 and recorded in Book Z3, page 323 on the same date.

The Ruberta 3, the N 1/2 S 1/2, the Ruberta 4, The S 1/2 N 1/2 and the Ruberta 8, the N 1/2 N 1/2, located on December 15, 1917 and recorded in Book Z3, pages 324, 326 on December 19, 1917.

Section 4, T9s, R25e, S. L. M.

The McRae 13 (NE 1/4), the McRae 14 (SE 1/4), the McRae 15 (SW 1/4), and the McRae 16 (SE 1/4), located on January 3, 1917 and recorded on January 18, 1917 in Book Z2, pages 75-76.

Section 5, T9s, R25e, S. L. M.

The McRae 17 (NE 1/4), the McRae 18 (SE 1/4), the McRae 19 (SW 1/4) and the McRae 20 (NW 1/4), located on January 3, 1917 and recorded in Book Z2, pages 76-77.

Section 1, T9s, R24e, S. L. M.

The Barron 1 (NE 1/4), the Barron 2 (SE 1/4), the Barron 3 (SW 1/4) and the Barron 4 (NW 1/4), located on January 3, 1917, and recorded in Book Z2, pages 20-30 on January 18, 1917.

Section 6, T9s, R25e, S. L. M.

The McRae 21 (NE 1/4), the McRae 22 (SE 1/4), the McRae 23 (SW 1/4) and the McRae 24 (NW 1/4), located on January 13, 1917 and recorded in Book Z2, pages 78-79 on January 18, 1917.

Section 7, T9s, R25e, S. L. M.

The McRae 25 (NE 1/4), the McRae 26 (SE 1/4), the McRae 27 (SW 1/4) and the McRae 28 (NW 1/4), located on January 1, 1917 and recorded in Book Z2, pages 79080 on January 18, 1917.

Section 8, T9s, R25e, S. L. M.

The McRae 29 (NE 1/4), the McRae 30 (SE 1/4), the McRae 31 (SE 1/4) and the McRae 32 (NW 1/4), located on January 1, 1917 and recorded in Book Z2, pages 80-81 on January 18, 1917.

Section 9, T9s, R25e. S. L. M.

The McRae 33 (NE 1/4), the McRae 34 (SE 1/4), the McRae 35 (SW 1/4), located on January 3, 1917 and recorded in Book Z2, page 82 on January 18, 1917.

Conclusion: The Ute Oil Company had the rights to the oil and gas deposits until 1921 when the company, an Arizona corporation quitclaimed their rights. Today the Bureau of Land Management leases the oil and and gas rights to the property. According to Uintah County Records, Northland Resources owns the leases today. The American Gilsonite Company acquired the patents to the gilsonite claims in 1946 and operates from Bonanza, Utah today. The gilsonite trenches crossing the tract 7 are not in use and have little historical value. The stone building has some local historical value as one of the earliest remaining structures connected with the gilsonite industry. The building is in very poor condition, hence needs restoration. But its historical and architectural value do not warrant restoration or any action.

Tract 8

Introduction: A search for homestead patents in the records of the Office of the County Clerk and Recorder, Uintah County, Vernal Utah, proved negative, indicating a lack of agricultural activity in the area, except for seasonal grazing by sheep. Numerous prospectors filed location notices on lode claims for gilsonite deposits,

and some were patented. The claims were generally 600 x 1500 feet, the earliest one being located in 1898. The area was a mining district that had not been surveyed, hence the physical descriptions of the locations of claims are very imprecise. (See Fig. 98). The field crew during their on-site survey, noticed rectangular stones placed in a criss-cross pattern to heights of about six feet. Situated on high points of bluffs, I suspect that these stone patterns served as orientation points in marking out claims. I could not find any documentation that revealed their function. The tract is situated in the Willow Creek Canyon Mining District.

Indefinite descriptions: The following mineral claims are listed as having indefinite descriptions in T10s, R21e, Salt Lake Meridian in the indexes of the Vernal Abstract Company.

Singer, Jackson, Rock, Batty, Uintah, Black Sal, Star, Big Tom, Schley, Henry George, Black Joe, Black Prince, Black Horse, Teddy, Windy, Pocahontas, Ravan, Emporia, Reynolds, Spur, Black Bess, Queen, Hiawatha, Sunset, Crowfoot, Blanca, Kay Bar Dee, Penucca, Blanca.

Precise descriptions: The following claims were listed in specific sections on tract 8

Section 33, T10s, R21e, S. L. M.

1955: Leslie L. Howard filed location notices on four mining lode claims on December 14, 1955 and recorded on January 12, 1956. The claims gave Howard the rights to uranium deposits on the 300 x 1500 feet plots

The claims were the Whitetailed Eagle 10, Book Z26, page 236, the Whitetailed Eagle 20, Book Z26, page 246, the Whitetailed Eagle 30, Book Z26, page 256, the Whitetailed Eagle 40, Book Z26, page 266.

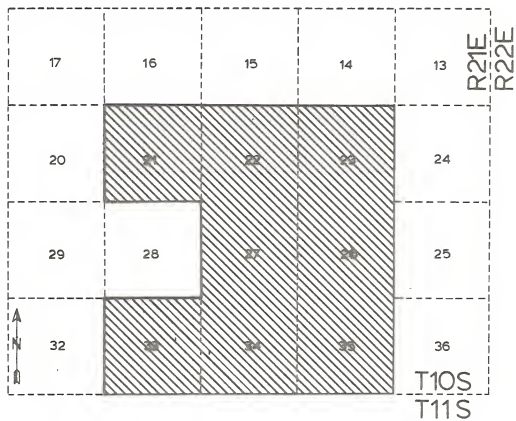


Figure 98. Map showing the location of in situ oil shale lease tract 8, Uintah County, Utah.

Section 34, T10s, R21e, S. L. M.

The Whitetailed Eagle 10 crossed into section 34.

Section 35, T10s, R21e, S. L. M.

1955: L. S. Howard located the Hopeful Chance 10 and the Hopeful Chance 20 on September 20, 1955, and recorded them in the Mining Records of Uintah County on October 20, 1955. Both claims were 600 x 1500 feet, recorded in Book Z29, pages 140, 150.

1958: Mining claim location notices, dated April 16, 1958 and recorded in Book Z29, pages 281-284, Uintah County records on April 18, 1955. Roy Pilling, Lavore Thompson, and William Main located four location notices on 600 x 1500 feet claims called the Big Strikes 1, 2,3, and 4.

Mining claim location notices, dated April 10, 1958 and recorded in Book Z29, pages 287-289, Uintah County Records on April 24, 1968. Clarence E. Nielson, Roy Pillings and Lewis Stilson filed three 600 x 1500 feet claims called the Black Diamonds 1,2, and 3.

Mining claim location notices, dated and recorded on May 15, 1958 in Book Z29, pages 295-296, Uintah County Mining Records. Clarence Nielson, Roy Pilling and Lewis Stilson filed 600 x 1500 feet claim on the Black Diamond 4 and 5.

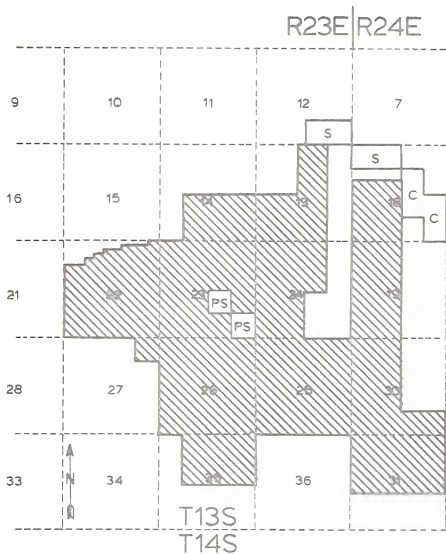
Conclusion: The first prospectors in the tract 8 area sought deposits of gilsonite around 1900. Few of the claims were ever patented, since large-scale development of gilsonite veins never materialized. The prospectors in the 1950s were primarily seeking uranium. Neither mining nor agriculture have prospered on tract 8, hence no architectural or historical values are associated with it.

Tract 9

According to the records of the Office of the County Clerk and Recorder of Uintah County, Vernal, Utah development of the immediate area around and on tract 9 did not begin until after 1918. Ranchers patented land along Bitter Creek adjacent to tract 9 and prospectors located oil shale claims on the tract (See Fig. 99)

Pappathanasian homestead

- 1924: Quitclaim deed 02081, dated November 22, 1924 and recorded in Book 25, page 228, Uintah County Records on August 10, 1925. Nick Pappathanasian of Watson, Utah quitclaimed title to an 80 acre patent described as the NW 1/4 SE 1/4, and the SE 1/4 SE 1/4 of section 23, T13s, R24e, S. L. M. to the Anderson Livestock Company of Vernal, Utah. Included in the transaction were the water rights to a small reservoir located near the property.
- 1926: Quitclaim deed 3270, dated May 6, 1926 and recorded in Book 25, pages 482-483, Uintah County Records on June 19, 1926. The William Anderson Livestock Company of Utah surrendered their title to the 80 acre plot to the Anderson Livestock Company of Colorado.
- 1930: Auditor's tax deed 8608, dated December 21, 1930 and recorded in Book 31, page 29, Uintah County Records on April 14, 1937. Anderson Livestock Company of Colorado owed \$8.39 in back taxes on the land for four years. The company did not redeem property, and the auditor conveyed the title to the plot to Uintah County.
- 1937: Quitclaim deed 9134, dated November 2, 1937 and recorded in Book 31, pages 232-233, Uintah County Records on November 4, 1937. F. L. Noel, the Uintah County Recorder, conveyed the property to the William Anderson Livestock Company (unspecified whether Colorado



KEY: Pappathanasian -PS Sprouse-Hatch -S

Cripple Cow Cowboy -C

1 mile

Figure 99. Map showing in situ oil shale lease tract 9 and adjacent privately-owned tracts.

or Utah) for a cash payment of \$25.74.

1943: Quitclaim deed 18,250, dated April 5, 1943 and recorded in Book 33, pages 435-436, Uintah County Records on April 6, 1943. John and Edith Mock of Ouray, Utah, conveyed the property to Frank A. and F. Allen Brewer of Jensen, Utah for \$500.00.

1952: Warranty deed 54,150, dated and recorded in Book A30, page 582, Uintah County Records. Frank A. and F. Allen Brewer conveyed the plot to Lorraine Pope.

1957: Warranty deed 74, 467, dated and recorded in Book A50, page 538, Uintah County Records on February 18, 1957. F. Allen Brewer sold the property to the Sprouse-Hatch Ranch Company for \$10.00 and other valuable considerations.

Summary: a search through the Grantor-Grantee indexes of the Office of the Uintah County Clerk and Recorder revealed no patent filed by Nich Pappathanasian or a previous title transfer. The Sprouse-Hatch Ranch owns the property today. No historic or architectural values are associated with the property.

Section 18, T13s, R24e, S. L. M.

Several 40 acre plots were patented adjacent to tract 9 along Bitter Creek after 1935 by ranchers and prospectors.

1927: Land list 543, dated and recorded in Book 26, page 190, Uintah County Records on May 16, 1927. The state of Utah placed the land on section 18 for sale in conjunction with school indemnity program.

1930: Quitclaim deed 7232, dated July 15, 1930 and recorded in Book 27, page 499, Uintah County Records on October 30, 1930. The state of Utah conveyed the title to the SE 1/4 SE 1/4 SE 1/4 SE 1/4 Section 18, T13s, R24e, to the United States of America.

Quitclaim deed 7771, dated August 19, 1930 and recorded in Book 27, page 585, Uintah County Records on January 15, 1931. The state of Utah quitclaimed the title to oil and gas deposits on property described as the NE 1/4 NW 1/4, the SW 1/4 NE 1/4, and the NW 1/4 SE 1/4 of section 18, T13s, R24e, S. L. M. to the United States of America.

1935: Patent 6052, dated May 23, 1935 and recorded in Book 29, pages 497-498, Uintah County Records on July 22, 1935. Albert E. Smith filed a claim on 640 acres along Bitter Creek that included the E 1/4 SE 1/4 of section 18, T13s, R24e, S. L. M.

1936: Quitclaim deed 8194, dated December 23, 1936 and recorded in Book 30, page 559, Uintah County Records on December 24, 1936. A. E. Smith and Atta M. Smith conveyed the title to the NE 1/4 NW 1/4, the SW 1/4 NE 1/4, and the NW 1/4 SE 1/4 of section 18 to H. H. (R?) Peale for \$45.12.

Summary: In 1936, the property reverted to the county. In 1939, Frank A. and F. Allen Brewer, of Jensen, Utah acquired the property described as the NE 1/4 NW 1/4, the SW 1/4 NE 1/4, the NW 1/4 SE 1/4, and the E 1/2 SE 1/4 of section 18, T13s, R24e. S. L. M. In 1956, the Cripple Cow Cowboy Outfit Inc., a Colorado corporation, acquired 160 acres described as the SW 1/4 NE 1/4, the NW 1/4 SE 1/4, and the E 1/2 SE 1/4 of section 18. The Sprouse-Hatch Ranch Company owns the N 1/2 NW 1/4 of section 18. No historic or architectural values are associated with the property.

Mining Claims: After 1917, prospectors located oil and gas claims on and adjacent to tract 9. Although several claims received patents, no major development of the oil resources has taken place.

Section 13, T13s, R23e, S. L. M.

1918: Amended location notices of placer mining claims, dated March 23, 1918 and amended and recorded in Book Z8, pages 145-150, Uintah County Mining Records on April 21, 1927. The claimants were E. E. Heaton, Chas. B. McKinna, Paulus Peterson, Byron Kimball, Albert McKinna, Ross Heaton, John Giraud and Lafe Bown. The claims were the Royal 1, 2, and 3 situated on 60 acres of the NW 1/4 and the SW 1/4 of section 13.

1920: Notice of location of placer mining claim, dated February 3, 1920 and recorded in Book, Z6, page 119 on February 10, 1920. H. E. Walsh, Don B. Colton, Lewis L. Colton, W. A. Colton, Grace Colton, K. A. Crisman, Lula Walsh and Louie A. Colton filed an oil shale claim on the Doctor 12 described as the S 1/2 SW 1/4 of section 12, and N 1/2 NW 1/4 of section 13 T13s, R23e S. L. M.

Section 14, T13s, R23e, S. L. M.

1818 Amended notice of location of placer mining claim, dated March 23, 1918 and recorded in Book Z8, pages 149-150, Uintah County Mining Records on April 21, 1927. Parts of Royal 1,2, and 3 were located on parts of the NE 1/4, the SE 1/4 and the NW 1/4 of section 14, T13s, R23e, S. L. M.

1931: Patent 6225, dated June 6, 1931 and recorded in Book Z9, page 170, Uintah County Mining Records on February 25, 1935. The claimants of the Royal 1, 2, and 3, proved up and patented the claims.

1918: Notice of location of placer mining claim, dated April 1, 1918 and recorded in Book Z4, pages 313-314, Uintah County Mining Records on April 20, 1918. George B. Pickett, J. H. Denby, Matie W. Pickett, I. S. Linstrum, M. M. Linstrum, R. E. L. Townson, Claude A. Power and W. H. Lewis filed claims on the Button Hole

2. and 3 located on the SW 1/4 of section 14.

1920: Notice of location of placer mining claim, dated February 3, 1920 and recorded in Book Z6, pages 121-122, Uintah County Mining Records on February 3, 1920. H. E. Walsh, Don B. Colton, Lewis Colton, W. A. Colton, Lula M. Walsh, Louie A. Colton, Cecil Gross, K. A. Crisman and C. A. Boren filed a claim for oil, gas and asphaltum rights on the Doctor 8, described as the W 1/2 SE 1/4 of section 11, the W 1/2 NE 1/4 of section 14, and the Doctor 10, described as the E 1/2 SE 1/4 of section 11 and the E 1/2 NE 1/4 of section 14.

Section 22, T13s, R23e, S. L. M.

1918: Amended notice of placer mining claim, dated April 18, 1918 and recorded in Book Z7, page 529, Uintah County Mining Records on March 23, 1925. George B. Pickett, J. H. Denby, Matie W. Pickett, I. J. Linstrum, R.E. L. Townson, M. M. Linstrum, Claude A. Potter and W. H. Lewis filed a claim for the oil and gas rights on Button Hole 1, which included parts of the NW 1/4 of section 22.

Section 18, T13s, R24e, S. L. M.

1929: Patent, 42,002, dated June 17, 1929 and recorded in Book A8, pages 361-363, Uintah County Records on December 12, 1950. Thrya A. Coke filed a certificate of register for the oil and gas rights to the Mayflower and Book Cliff claims located on the NE 1/4 NE 1/4 of section 18, T13s, R24e, S. L.M.

Conclusion: The Pappathanasian property is the only private land on tract 9. It was probably claimed for the water so necessary for sheep or cattle grazing. Adjacent to tract 9, along Bitter Creek are private lands associated with the cattle industry, although oil speculation certainly figured in the patents. The Mayflower,

the Bookcliff, the Royal claims 1, 2, and 3, the Button Hole placers 1, 2, and 3 are all patented mining claims to oil and gas deposits. Euroamerican interest in the area developed rather late, after 1917 and no significant developments in the mining or livestock industry have taken place. Hence no historic or cultural values are recognized on/or adjacent to tract 9.

Form 1070-3
June 1964

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